5. FOS Release B Subsystem Test Cases

Table 5-1. Release B Subsystem Test Cases (1 of 2)

System Management:
·SYS-2020B Logical String Configuration, Control, & Terminate
FUI:
·FUI-2060B Procedure Control/Validation
·FUI-2080B OASIS/CSTOL Conversion
PAS:
·PAS-2035B EOC Timeline Manipulation
·PAS-2040B Contact Scheduler
·PAS-2110B Scheduling Microprocessor/table/FSW/RTS Load Uplink Activities
·PAS-2180B Receive/Schedule Late Change Requests
·PAS-2190B What-If Planning & Scheduling
·PAS-2200B DAS Generation
CMD:
·CMD-2001B Command Generation
·CMD-2010B Ground Script Control
·CMD-2015B Ground Script Commanding
·CMD-2030B Manual Commanding
·CMD-2050B Uplink Loads
·CMD-2070B Command modes - Transmission & Uplink
·CMD-2080B Command - Telemetry Verification and Receipt Verification
CMS:
·CMS-2000B Memory Dump Image
·CMS-2040B Table Load Validation & Generation
·CMS-2060B Microprocessor & FSW Load Generation
·CMS-2090B ATC Load Generation & Validation
·CMS-2100B ATC Load Management
·CMS-2170B Validate and Generate RTS load contents
·CMS-2180B RTS load management
·CMS-2190B Table load Management
TLM:
·TLM-2000B Decom - Health & Safety/Standby Tlm
·TLM-2010B Decom - Housekeeping Telemetry
·TLM-2020B Decom - Context Dependent Telemetry
·TLM-2030B Engineering Unit Conversion
·TLM-2040B User Adjustment of EU Algorithms/Coefficients
·TLM-2050B Multi-Byte Parameter Processing

Table 5-1. Release B Subsystem Test Cases (2 of 2)

·TLM-2060B Derived Parameter Processing
·TLM-2070B Data Quality Determination
·TLM-2080B Red/Yellow Limits Processing
·TLM-2090B Delta Limits Processing
·TLM-2150B Real-time Data Dropout
·TLM-2160B Real-time Telemetry Archive and Merge
·TLM-2170B Multiple Source TLM Data Receipt & Display
·TLM-2190B Telemetry Replay Processing and Display
Analysis:
·ANA-2000B Dataset Generation - General Analysis
·ANA-2020B Spacecraft Clock Correlation Based on RDD Method
·ANA-2030B Spacecraft Clock Correlation Based on USCCS Method
·ANA-2040B Special Processing Algorithms
·ANA-2060B Time Order Down-link Report
·ANA-2070B Parameter Out of Limits Report
·ANA-2090B Analysis Products - Crossing Database Boundaries
·ANA-2100B System Generated Statistics
·ANA-2110B User Specified Statistics
EDOS:
·EDOS-2000B CODA Processing & Pre-command Readiness
·EDOS-2002B Test Command Echo Exchange
·EDOS-2010B SCS Summary Report Receipt & Display
·EDOS-2030B Receive Trash Buffer Data and Forward to SAS/SDVF
NCC:
·NCC-2030B Request/Analyze User Performance Data (UPD)
Contact
· CONT-2010B DSS
· CONT-2020B Spacecraft Activity Log
· CONT-2030B SSR Monitoring
· CONT-2040B Spacecraft State Check

Logical String Configuration, Control and Termination

Test Case No: SYS-2020B

Test Configuration: See Appendix G

Test Support: Real-Time Server, Data Server, 2 EOC user stations; telemetry (FtPgPackGen) and command-related (sc) drivers; tcpdump; dynamic pages built to display logical string information and to verify telemetry receipt.

Test Case Description:

This test is designed to verify the ability to configure the FOS resources in support of operational, test, and training activities. Following initialization of the FOS Servers and User Stations, logical strings are created for various combinations of data source (real-time or simulated) and mode (operational, test, or training). Several iterations of connecting to, disconnecting from, and deleting logical strings are performed. Telemetry processing and command generation is executed for each logical string mode. Telemetry decommutation is turned off, and later turned on, for a tailored string connection. Alphanumeric display pages containing logical string information are viewed for each logical string. Attempts to create existing strings, connect to non-existent strings, and delete connected strings are exercised.

Success Criteria:

This test is considered successful when initialization of real-time processes invoke the Real-Time server default logical string resources; additional logical strings can be created; logical strings can be deleted, but only by an authorized user who has taken ground control for the applicable string; logical strings can be created for valid combinations of data source and mode, i.e., real-time/operational, real-time/test, simulation/training, and simulation/test; a real-time logical string can coexist with another logical string; logical strings may be connected to, and disconnected from, via ECL directive; attempts to create existing strings, connect to non-existent strings, and delete connected strings are denied; logical string configuration is accurately portrayed by display pages; tailored string connections affect the tailored connection only; and telemetry is processed and commands generated for each logical string mode.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC user station. Start the Data Server. Execute the applicable steps of SYS2000B, 'FOS Server and User Station Startup and Shutdown'.	Data Server processes are running.	
2.	Start two EOC User Stations. Execute the applicable steps of SYS2000B, 'FOS Server and User Station Startup and Shutdown'. User station #1 -- User ID with ground control authority and command authority on a User Station configured for ground control and command. User station #2 -- User ID with at least ground control authority on a User Station configured for ground control. Notes: File /fosb/test/am1/config/gchw.db must include User Stations #1 and #2; File /fosb/test/am1/config/gcuser.db must include EOC Users #1 and #2; File /fosb/test/am1/config/hw.db must include EOC User Station #1; File /fosb/test/am1/config/user.db must include EOC User #1.	User Station #1 #2 -- Each user station is up when the 'Control window' is displayed.	

3.	User Station #1 #2 -- Invoke the Global Event Display. In the 'Control window', click on the 'Tools' button. In the 'Tools' menu, select 'Event_Display-Global'	User Station #1 #2 -- The 'Tools' menu comes up, then closes. The 'Event Display' comes up.	
4.	Start the Real-Time Server. Execute the applicable steps of SYS2000B, 'FOS Server and User Station Startup and Shutdown'.	Real-Time Server processes are running. User Station #1 #2 -- The following event message appears: 'String 100 was Created'.	
5.	User Station #1 #2 -- Attempt to take ground control authority. Enter the following ECL directive: ECL> **TAKE GROUNDCONTROL STRING=100**	User Station #1 #2 -- The following event message appears: 'Must be connected as Mirrored before requesting Ground Control Authority.'	
6.	User Station #1 -- Connect mirrored to string 100. Enter the following ECL directive: ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	User Station #1 -- The following event message appears (after several minutes): 'Successfully connected to string 100'. A 'status' window containing several SYS parameters comes up.	

7.	User Station #2 -- Connect tailored to logical String 100. Enter the following ECL directive: ECL> **STRING CONNECT STRING=100 CONFIG=TAILOR**	User Station #2 -- The following event message appears (after several minutes): 'Successfully connected to string 100'. A 'status' window containing several SYS parameters comes up.	
8.	User station #1 -- Take ground control for String 100. Enter the following ECL directive: ECL> **TAKE GROUNDCONTROL STRING=100**	User Station #1 -- The following event messages appear: 'Ground Control Authority has changed from <former user or EcDNull> to <User #1> for String 100'	
9.	User Station #1 -- Take command for String 100. Enter the following ECL directive: ECL> **TAKE COMMAND STRING=100**	User Station #1 -- The following event message appears: 'Command Authority has changed from <former user or EcDNull> to <User #1> for String 100'	

10.	User Station #1 #2 -- Connect the logical string information display page to String 100. With the cursor on the display page, use the right mouse button to select 'Data Source Selector'. In the 'Data Source Switcher' window: Click on 'Refresh' button; In the 'Established Connections' portion, select the row with String Id = 100, I channel; Select the existing row in 'Assigned Connections' portion; Click on 'Switch Connection' button; Click on 'Close' button.	User Station #1 #2 -- The 'Data Source Switcher' window comes up. In the 'Data Source Switcher' window, the information selected in the 'Established Connections' portion overwrites the information in the 'Assigned Connections' portion. The 'Data Source Switcher' window contains the Status: 'Data sources switched successfully'. The 'Data Source Switcher' window closes. The display page contains the following: SYS_ACTIVE_STRING_ID = 100 SYS_CMD_AUTHOR_ID = <User #1> SYS_ CMD_AUTHOR_WS_ID = <User Station #1> SYS_DB_ID = 1.0 SYS_BACKUP_RTS_ID = 0 SYS_INACTIVE_RTS_ID = 0	
11.	User Station #2 -- Create a **real-time/test** logical string. Enter the following ECL directive: ECL> **STRING CREATE REALTIME SPACECRAFTID=AM1 DATABASEID=1_0 MODE=TEST SERVER=1**	User Station #2 -- The following event message appears (after several minutes): 'String 101 was Created.'	

12.	User Station #1 #2 -- Connect mirrored to logical String 101. Enter the following ECL directive: ECL> **STRING CONNECT STRING=101 CONFIG=MIRROR**	User Station #1 #2 -- The following event message appears (after several minutes): 'Successfully connected to string 101'. A 'status' window containing several SYS parameters comes up.	
13.	User station #1 -- Take ground control for String 101. Enter the following ECL directive: ECL> **TAKE GROUNDCONTROL STRING=101**	User Station #1 -- The following event messages appear: 'Ground Control Authority has changed from <former user or EcDNull> to <User #1> for String 101'	
14.	User Station #1 -- Take command for String 101. Enter the following ECL directive: ECL> **TAKE COMMAND STRING=101**	User Station #1 -- The following event message appears: 'Command Authority has changed from <former user or EcDNull> to <User #1> for String 101'	

15.	User Station #1 #2 -- Connect the logical string information display page to String 101. With the cursor on the display page, use the right mouse button to select 'Data Source Selector'. In the 'Data Source Switcher' window: Click on 'Refresh' button; In the 'Established Connections' portion, select the row with String Id = 101, I channel; Select the existing row in 'Assigned Connections' portion; Click on 'Switch Connection' button; Click on 'Close' button.	User Station #1 #2 -- The 'Data Source Switcher' window comes up. In the 'Data Source Switcher' window, the information selected in the 'Established Connections' portion overwrites the information in the 'Assigned Connections' portion. The 'Data Source Switcher' window contains the Status: 'Data sources switched successfully'. The 'Data Source Switcher' window closes. The display page contains the following: SYS_ACTIVE_STRING_ID = 101 SYS_CMD_AUTHOR_ID = <User #1> SYS_ CMD_AUTHOR_WS_ID = <User Station #1> SYS_DB_ID = 1.0 SYS_BACKUP_RTS_ID = 0 SYS_INACTIVE_RTS_ID = 0	
16.	User Station #1 #2 -- Bring up two Housekeeping Telemetry display pages. In the 'Control window', click on the 'TlmWins' button. In the 'Tlm Wins' menu, select 'TLM-2010B'. Repeat this step again.	User Station #1 #2 -- The 'Telemetry Window Selection' menu comes up, then closes. The 'TLM-2010B' Housekeeping telemetry display page comes up. The same expected result occurs again.	

17.	User Station #1 #2 -- Connect one Housekeeping Telemetry display page to String 100. With the cursor on the Housekeeping Telemetry display page, use the right mouse button to select 'Data Source Selector'. In the 'Data Source Switcher' window: Click on 'Refresh' button; In the 'Established Connections' portion, select the row with String Id = 100, I channel; Select the existing row in 'Assigned Connections' portion; Click on 'Switch Connection' button; Click on 'Close' button.	User Station #1 #2 -- The 'Data Source Switcher' window comes up. In the 'Data Source Switcher' window, the information selected in the 'Established Connections' portion overwrites the information in the 'Assigned Connections' portion. The 'Data Source Switcher' window contains the Status: 'Data sources switched successfully'. The 'Data Source Switcher' window closes.	
18.	User Station #1 #2 -- Connect the second Housekeeping Telemetry display page to String 101 by re-executing the preceding step with the following exception: In the 'Established Connections' portion of the 'Data Source Switcher' window, select the row with String Id = 101, I channel.	User Station #1 #2 -- The data source is switched to String 101, I-channel.	

19.	User Station #1 -- Invoke the telemetry driver for the multicast of telemetry packets. In a new cmdtool window, enter the following: %: **cd /fosb/test/am1/scripts/setup** (**test** is alias) %: **setenv SCRIPT UserStation** %: **source FosEnvVars** %:**cd/fosb/test/am1/bin/sun_sparc_5-5** (**bin** is alias) %: **FtPgPackGen**	User Station #1 -- The following message appears in the window where the FtPgPackGen tool is running: 'Packet Generator is ready to receive directives.'	
20.	User Station #1 -- Start the multicast of **real-time/operational/I-channel housekeeping** telemetry packets for processing. Enter the following ECL directives: ECL> **PG CONFIG HOST=225.2.7.00 PORT=20001 APID=1** ECL> **PG STARTDATA APID=1 COUNT=-1** (Note: The IP address and port number is in the file '/fosb/test/am1/config/FoSwConfigData.cnfg'.)	User Station #1 #2 -- Telemetry values are updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100. For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101, all parameter values remain static at their initial values.	

21.	User Station #2 -- Turn off the decommutation of all telemetry at this user station for String 100. Enter the following ECL directive: ECL> **DECOM SEL=ALL MODE=OFF STRING=100**	User Station #1 -- Telemetry values are updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100. User Station #2 -- Telemetry values are *not* updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100. User Stations #1 #2 -- For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101, all parameter values remain static at their initial values.	
22.	User Station #2 -- Turn on the decommutation of all telemetry at this user station for String 100. Enter the following ECL directive: ECL> **DECOM SEL=ALL MODE=ON STRING=100**	User Stations #1 #2 -- Telemetry values are updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100. For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101, all parameter values remain static at their initial values.	
23.	User Station #1 -- Stop the flow of telemetry. Enter the following ECL directive: ECL> **PG STOPDATA APID=1**	User Stations #1 #2 -- Telemetry values are no longer updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100, and the values go static. For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101, all parameter values remain static at their initial values.	

24.	User Station #1 -- Start the multicast of **real-time/test/I-channel housekeeping** telemetry packets for processing. Enter the following ECL directives: ECL> **PG CONFIG HOST=225.2.7.20 PORT=20020 APID=1** ECL> **PG STARTDATA APID=1 COUNT=-1** (Note: The IP address and port number is in the file '/fosb/test/am1/config/FoSwConfigData.cnfg'.)	User Station #1 #2 -- Telemetry values are updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101. For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100, all parameter values remain static at their initial values.	
25.	User Station #1 -- Stop the flow of telemetry. Enter the following ECL directive: ECL> **PG STOPDATA APID=1**	User Stations #1 #2 -- Telemetry values are no longer updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101, and the values go static. For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100, all parameter values remain static at their initial values.	
26.	**Logical String Command Subprocedure Start** (next step)	(No expected result/output; information only)	

27.	User Station #1 -- Remotely log in to the Real-Time Server by entering the following in a new cmdtool window. %: **rlogin <RealTimeServer>** At the Real-Time Server prompt, enter the following: %: **cd /fosb/test/am1/scripts/setup** (**test** is alias) %: **setenv SCRIPT RealTimeServer** %: **source FosEnvVars** %: **cd /fosb/test/am1/bin/sun_sparc_5-5** (**bin** is alias) %: **sc AM1 100 Ops**	User Station #1 -- The remote login to the Real-Time Server is successful. The following message appears repeatedly in the Real-Time Server cmdtool window: 'sc Waiting for messages'	
28.	User Station #1 -- Initiate the tcpdump tool to capture **real-time, operational** commands. In a new cmdtool window, enter the following: %: **tcpdump -v port 20058**	User Station #1 -- The following message appears in the cmdtool window: 'listening on le0'	

29.	User Station #1 -- From the Control window, bring up the 'Command Control window'. In the 'Control window', click on the 'Tools' button. In the 'Tools' menu, select 'Command_Control' In the Command Control dialog box, enter the following: String ID: **100** Spacecraft ID: **AM1**	User Station #1 -- The 'Tools' menu comes up. The 'Command Control window' comes up. The Command Control dialog box comes up and then closes after user input.	
30.	User Station #1 -- In the 'Config' pull-down menu of the 'Command Control window', set the following: Cmd Verification (CV): Off Tlm Verification (TV): Off In the 'Command Control window', enter the following in the CMD field: **FOP INIT CHECK** Click on 'Resume' button Click on 'Send' button Click on 'Suspend' button	User Station #1 -- In the 'Command Control window', the following occurs: The 'CV' and 'TV' indicators are both 'Off'. The 'DIRECTIVE' column contains 'FOP INIT CHECK'. After the 'Resume' button is clicked, the Send/Cancel options are activated. After the 'Send' button is clicked, the STATUS column includes 'Processed -2 | Sent to subsys'. The following event messages appear: 'StringMgr process successfully configured'; 'Protocol Info: FOP INIT with CLCW check successful'.	

31.	User Station #1 -- In the 'Command Control window', enter the following in the CMD field: **/AST_TURN_OFF_C_SDP** Click on 'Resume' button Click on 'Send' button Click on 'Override' button Click on 'Kill' button	User Station #1 -- In the 'Command Control window', the following occurs: The DIRECTIVE column contains '/AST_TURN_OFF_C_SDP'. After the 'Resume' button is clicked, the Send/Cancel options are activated. After the 'Send/Override' button is clicked, the STATUS column includes 'TV Fail -3 | CV Pass -2 | Processed -2 | Sent to FOP | Sent to subsys'. The following event messages appear: 'Command AST_TURN_OFF_C_SDP was successfully build with binary = ...'; 'CLTU id AST_TURN_OFF_C_SDP placed in command data block number 1'; 'Command Data Block number 1 sent to EDOS'; 'Command AST_TURN_OFF_C_SDP timed out -- verification failure.' A message in the window where tcpdump is running indicates that a command has been sent. A warning dialog states the ground script will be removed. The 'Command Control window' closes.	

32.	User Station #1 -- In the window containing the remote login to the Real-Time Server, depress the following two keys simultaneously: Ctrl C	User Station #1 -- The 'sc' tool quits, and a UNIX prompt is received from the Real-Time Server.	
33.	User Station #1 -- In the window containing tcpdump, depress the following two keys simultaneously: Ctrl C	User Station #1 -- The 'tcpdump' tool quits, and a UNIX prompt is received from the user station.	
34.	**Logical String Command Subprocedure End** (preceding step)	(No expected result/output; information only)	
35.	User Station #1 -- Execute the 'Logical String Command Subprocedure' with the following exceptions: At the Real-Time Server prompt, enter the following: %: **sc AM1 101 Test** In the window where tcpdump was running, enter the following: %: **tcpdump -v port 20059** In the Command Control dialog box, enter the following: String ID: **101** Spacecraft ID: **AM1**	User Station #1 -- The following event messages appear: FOP-related and AST_TURN_OFF_C_SDP-related messages as indicated in the 'Logical String Command Subprocedure.' A message in the window where tcpdump is running indicates that a command has been sent.	

36.	User Station #1 -- Attempt to delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'Unable to delete String 101 when users are connected. Suggest notifying users to disconnect from String.'	
37.	User Station #1 -- Disconnect from String 101. Enter the following ECL directive: ECL> **STRING DISCONNECT STRING=101**	User Station #1 -- The following event messages appear: 'User successfully disconnected from String 101'	
38.	User Station #1 -- Attempt to delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'Unable to delete String 101 when users are connected. Suggest notifying users to disconnect from String.'	
39.	User Station #2 -- Disconnect from String 101. Enter the following ECL directive: ECL> **STRING DISCONNECT STRING=101**	User Station #2 -- The following event message appears: 'User successfully disconnected from String 101'	
40.	User Station #2 -- Attempt to delete string 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #2 -- The following event message appears: 'User is not the Ground Controller for string 101. User must have Ground Control Authority before requesting this service.'	

41.	User Station #1 -- Delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'String 101 was deleted.'	
42.	User Station #1 -- Delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'Unable to locate string 101. User should make sure directive contains correct string ID.'	
43.	User Station #1 -- Attempt to connect mirrored to String 101. Enter the following ECL directive: ECL> **STRING CONNECT STRING=101 CONFIG=MIRROR**	User Station #1 -- The following event message appears: 'Unable to locate string 101. User should make sure directive contains correct string ID.'	
44.	User Station #1 -- Attempt to disconnect from String 101. Enter the following ECL directive: ECL> **STRING DISCONNECT STRING=101**	User Station #1 -- The following event message appears: 'Unable to locate string 101. User should make sure directive contains correct string ID.'	
45.	User Station #1 -- Create a **simulation/training** logical string. Enter the following ECL directive: ECL> **STRING CREATE SIMULATION SPACECRAFTID=AM1 DATABASEID=1_0 MODE=TRAINING SERVER=1**	User Station #1 -- The following event message appears: 'String 101 was Created.'	

46.	User Station #1 #2-- Connect mirrored to logical String 101. Enter the following ECL directive: ECL> **STRING CONNECT STRING=101 CONFIG=MIRROR**	User Station #1 #2 -- The following event message appears (after several minutes): 'Successfully connected to string 101'. A 'status' window containing several SYS parameters comes up.	
47.	User station #1 -- Take ground control for String 101. Enter the following ECL directive: ECL> **TAKE GROUNDCONTROL STRING=101**	User Station #1 -- The following event messages appear: 'Ground Control Authority has changed from <former user or EcDNull> to <User #1> for String 101'	
48.	User Station #1 -- Take command for String 101. Enter the following ECL directive: ECL> **TAKE COMMAND STRING=101**	User Station #1 -- The following event message appears: 'Command Authority has changed from <former user or EcDNull> to <User #1> for String 101'	

49.	User Station #1 #2 -- Connect the logical string information display page to String 101. With the cursor on the display page, use the right mouse button to select 'Data Source Selector'. In the 'Data Source Switcher' window: Click on 'Refresh' button; In the 'Established Connections' portion, select the row with String Id = 101, I channel; Select the existing row in 'Assigned Connections' portion; Click on 'Switch Connection' button; Click on 'Close' button.	User Station #1 #2 -- The 'Data Source Switcher' window comes up. In the 'Data Source Switcher' window, the information selected in the 'Established Connections' portion overwrites the information in the 'Assigned Connections' portion. The 'Data Source Switcher' window contains the Status: 'Data sources switched successfully'. The 'Data Source Switcher' window closes. The display page contains the following: SYS_ACTIVE_STRING_ID = 101 SYS_CMD_AUTHOR_ID = <User #1> SYS_ CMD_AUTHOR_WS_ID = <User Station #1> SYS_DB_ID = 1.0 SYS_BACKUP_RTS_ID = 0 SYS_INACTIVE_RTS_ID = 0	

50.	User Station #1 #2 -- Re-connect the Housekeeping Telemetry display page that was connected to the 'old' String 101 to the current String 101. With the cursor on the Housekeeping Telemetry display page, use the right mouse button to select 'Data Source Selector'. In the 'Data Source Switcher' window: Click on 'Refresh' button; In the 'Established Connections' portion, select the row with String Id = 101, I channel; Select the existing row in 'Assigned Connections' portion; Click on 'Switch Connection' button; Click on 'Close' button.	User Station #1 #2 -- The 'Data Source Switcher' window comes up. In the 'Data Source Switcher' window, the information selected in the 'Established Connections' portion overwrites the information in the 'Assigned Connections' portion. The 'Data Source Switcher' window contains the Status: 'Data sources switched successfully'. The 'Data Source Switcher' window closes.	
51.	User Station #1 -- Start the multicast of **simulation/training/I-channel housekeeping** telemetry packets for processing. Enter the following ECL directives: ECL> **PG CONFIG HOST=225.2.7.40 PORT=20070** ECL> **PG STARTDATA APID=1 COUNT=-1** (Note: The IP address and port number is in the file '/fosb/test/am1/config/FoSwConfigData.cnfg'.)	User Station #1 #2 -- Telemetry values are updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101. For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100, all parameter values remain static at their initial values.	

52.	User Station #1 -- Stop the flow of telemetry. Enter the following ECL directive: ECL> **PG STOPDATA**	User Stations #1 #2 -- Telemetry values are no longer updated on the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 101, and the values go static. For the 'TLM-2010B' Housekeeping Telemetry display pages connected to String 100, all parameter values remain static at their initial values.	
53.	User Station #1 -- In the window containing the 'FtPgPackGen' telemetry driver, depress the following two keys simultaneously: Ctrl C	User Station #1 -- The 'FtPgPackGen' tool quits, and a UNIX prompt is received.	
54.	User Station #1 -- Execute the 'Logical String Command Subprocedure' with the following exceptions: At the Real-Time Server prompt, enter the following: %: **sc AM1 101 Training** In the window where tcpdump was running, enter the following: %: **tcpdump -v port 20098** In the Command Control dialog box, enter the following: String ID: **101** Spacecraft ID: **AM1**	User Station #1 -- The following event messages appear: FOP-related and AST_TURN_OFF_C_SDP-related messages as indicated in the 'Logical String Command Subprocedure.' A message in the window where tcpdump is running indicates that a command has been sent.	

55.	User Station #1 -- In the window containing the remote login to the Real-Time Server, enter the following to log out from the Real-Time Server: %: **exit**	User Station #1 -- A UNIX prompt is received from <User Station #1>.	
56.	User Station #2 -- Attempt to delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #2 -- The following event message appears: 'User is not the Ground Controller for string 101. User must have Ground Control Authority before requesting this service.'	
57.	User Station #1 -- Attempt to delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'Unable to delete String 101 when users are connected. Suggest notifying users to disconnect from String.'	
58.	User Station #1 #2 -- Disconnect from String 101. Enter the following ECL directive: ECL> **STRING DISCONNECT STRING=101**	User Station #1 #2 -- The following event messages appear: 'User successfully disconnected from String 101'	
59.	User Station #2 -- Attempt to delete string 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #2 -- The following event message appears: 'User is not the Ground Controller for string 101. User must have Ground Control Authority before requesting this service.'	

60.	User Station #2 -- Attempt to create a **simulation/test** logical string. Enter the following ECL directive: ECL> **STRING CREATE SIMULATION SPACECRAFTID=AM1 DATABASEID=1_0 MODE=TEST SERVER=1**	User Station #2 -- The following event message appears: 'User illegally trying to create a Simulation string. Suggest making sure that string's mode is valid.' (Note: Cannot have simulation/training and simulation/test logical strings simultaneously.)	
61.	User Station #1 -- Delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'String 101 was deleted.'	
62.	User Station #1 -- Attempt to create a **simulation/operational** logical string. Enter the following ECL directive: ECL> **STRING CREATE SIMULATION SPACECRAFTID=AM1 DATABASEID=1_0 MODE=OPERATIONAL SERVER=1**	User Station #1 -- The following event message appears: 'User trying to create a Simulation String with an invalid mode.' (Note: A simulation/operational logical string is an invalid combination.)	
63.	User Station #2 -- Create a **simulation/test** logical string. Enter the following ECL directive: ECL> **STRING CREATE SIMULATION SPACECRAFTID=AM1 DATABASEID=1_0 MODE=TEST SERVER=1**	User Station #2 -- The following event message appears: 'String 101 was Created.'	

64.	User Station #1 #2-- Connect mirrored to logical String 101. Enter the following ECL directive: ECL> **STRING CONNECT STRING=101 CONFIG=MIRROR**	User Station #1 #2 -- The following event message appears (after several minutes): 'Successfully connected to string 101'. A 'status' window containing several SYS parameters comes up.	
65.	User station #1 -- Take ground control for String 101. Enter the following ECL directive: ECL> **TAKE GROUNDCONTROL STRING=101**	User Station #1 -- The following event messages appear: 'Ground Control Authority has changed from <former user or EcDNull> to <User #1> for String 101'	
66.	User Station #1 -- Take command for String 101. Enter the following ECL directive: ECL> **TAKE COMMAND STRING=101**	User Station #1 -- The following event message appears: 'Command Authority has changed from <former user or EcDNull> to <User #1> for String 101'	

67.	User Station #1 #2 -- Connect the logical string information display page to String 101. With the cursor on the display page, use the right mouse button to select 'Data Source Selector'. In the 'Data Source Switcher' window: Click on 'Refresh' button; In the 'Established Connections' portion, select the row with String Id = 101, I channel; Select the existing row in 'Assigned Connections' portion; Click on 'Switch Connection' button; Click on 'Close' button.	User Station #1 #2 -- The 'Data Source Switcher' window comes up. In the 'Data Source Switcher' window, the information selected in the 'Established Connections' portion overwrites the information in the 'Assigned Connections' portion. The 'Data Source Switcher' window contains the Status: 'Data sources switched successfully'. The 'Data Source Switcher' window closes. The display page contains the following: SYS_ACTIVE_STRING_ID = 101 SYS_CMD_AUTHOR_ID = <User #1> SYS_ CMD_AUTHOR_WS_ID = <User Station #1> SYS_DB_ID = 1.0 SYS_BACKUP_RTS_ID = 0 SYS_INACTIVE_RTS_ID = 0	
68.	User Station #1 -- Attempt to create another **real-time/operational** logical string. Enter the following ECL directive: ECL> **STRING CREATE REALTIME SPACECRAFTID=AM1 DATABASEID=1_0 MODE=OPERATIONAL SERVER=1**	User Station #1 -- The following event message appears: 'User trying to create a Realtime string that already exists'	

69.	User Station #1 -- Attempt to create another **simulation/test** logical string. Enter the following ECL directive: ECL> **STRING CREATE SIMULATION SPACECRAFTID=AM1 DATABASEID=1_0 MODE=TEST SERVER=1**	User Station #1 -- The following event message appears: 'User trying to create a Simulation string that already exists'	
70.	User Station #1 -- Attempt to create a **real-time/training** logical string. Enter the following ECL directive: ECL> **STRING CREATE REALTIME SPACECRAFTID=AM1 DATABASEID=1_0 MODE=TRAINING SERVER=1**	User Station #1 -- The following event message appears: 'User trying to create a Realtime string with an invalid mode.' (Note: A real-time/training logical string is an invalid combination.)	
71.	User Station #1 #2 -- Disconnect from String 101. Enter the following ECL directive: ECL> **STRING DISCONNECT STRING=101**	User Station #1 #2 -- The following event messages appear: 'User successfully disconnected from String 101'	
72.	User Station #2 -- Attempt to delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'User is not the Ground Controller for string 101. User must have Ground Control Authority before requesting this service.'	
73.	User Station #1 -- Delete String 101. Enter the following ECL directive: ECL> **STRING DELETE STRING=101**	User Station #1 -- The following event message appears: 'String 101 was deleted.'	

74.	End of test.		

Procedure Control & Execution (Final: August 29, 1997)

Test Case No: FUI-2060B

Test Configuration: See Appendix G

Test Support: A DAS; a set of validated procedures which include command, ground and local procedure types; a procedure that invokes another procedure; at least three (3) local type procedures.

Test Case Description:

This test is designed to verify the capability of the authorized users to execute procedures, suspend execution, resume execution, and terminate execution in accordance with system controls and restrictions. The test begins with bringing up a user station, attaching to the operational string and executing a local procedure, suspending the execution of the procedure, resuming the procedure. Multiple local procedures will then be executed simultaneously and one of the procedures will be terminated. Command type procedures and Ground type procedures will be executed. Required authority for these procedures will be verified, restrictions for execution will be verified and the capability to monitor procedure execution will be performed.

Success Criteria:

This test is considered successful when the user is able to execute a non-command procedure from his workstation and to monitor and control the execution of the procedure from a system provided display; execute multiple local procedures simultaneously; suspend an executing procedure; resume execution of a suspended procedure; terminate an executing procedure; the system allows only one ground system procedure per logical string to execute at a time; the system allows an authorized user to invoke a command procedure consisting of more than one command; the system restrict command procedures to be active one at a time; the EOC requires a user authorization (allow or cancel) prior to up-linking a critical command; the system will allow procedures to invoke other procedures; and the user can invoke a procedure at a specified time.

Step Id	Action	Expected Result/Output	Pass/ Fail

1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS2000B – FOS Server Startup	Data server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS2000B -- FOS Server Startup.	Real-Time Server processes are running.	
3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Click on the 'Tools…' button	The Tools dialog window is dispayed.	
5.	Select **Event_Display-Global** and click 'OK'	The Tools dialog window closed and the Event Display window opened.	
6.	In the Control window ECL text field enter: ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	The following event messages are displayed: Establishing ParameterServer service… ParameterServer process successfully configured. Establishing Decom service…. Decom process successfully configured StringMgr process connected to String 100 Successfully connected to string 100.	
7.	In the Control window ECL text field enter: ECL> **START Local1** (local proc)	Event messages are displayed in the Event Display and Control window as each directive is executed.	

8.	In the Control window ECL text field enter: ECL> **START Local1 TIME=HH:MM:SS** ECL> **START TESTPROC1 TIME=HH:MM:SS** (same time + 1 second)	At HH:MM:SS both local procedures start. Event messages are displayed in the Event Display window and the procedure steps flash as they are executed in the Procedure Control window and the status is updated.	
9.	Click on the 'Tools…' button in the Control window.	The Tools dialog window is displayed.	
10.	Select **Procedure_Control** and click 'OK'	The Procedure Control window is displayed.	
11.	Click on the 'File' pull-down menu and select **Open**	The Open File dialog box opened.	
12.	Select file name **Local1** from the file list and click on the 'OK' button	The Open File dialog box closed and the Procedure Control window is populated with procedure name, status, start time and procedure steps. The procedure is in the Suspended state and the Step mode.	
13.	Click on 'Auto' button Click on 'Resume' button. Click on 'Suspend' button.	The procedure status changed from Suspended to Active when the Resume button was clicked and ECL directives started executing and the Directive Status fields started updating. The procedure status changed from Active to Suspended when the Suspend button was clicked and the ECL directives stopped executing.	
14.	In the Procedure Control window click 'Resume' and then 'Suspend' and then 'Kill'	The Procedure Status changes from Suspended to Active to Suspended to Terminated	
15.	Click the 'Close' button on the Procedure Control window and select **Close**	The Procedure Control window closed.	

16.	In the Control window ECL text field enter: ECL> **TAKE COMMAND STRING=100**	The following event messages are displayed: Command Authority has changed from EcDNull to fostest2 Command Authority of NccGroundMgr changed to user: fostest2 Command Authority of NccStatusMgr changed to users wks: fossws<ws_id> Command Authority starting fossws<ws_id> for string 100	
17.	In the Control window ECL text field enter: ECL> **TOOL Command_Control**	A dialog box appears to enter Sting and Spacecraft ID.	
18.	In the dialog box enter: STRING=**100** SPACECRAFT ID = **AM1** and click 'OK'	The dialog box closed and the Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, ATC_LOC, TYPE, DIRECTIVE, STATUS (Note: User may need to resize window if all columns are not displayed)	
19.	In the Control window ECL text field enter: **TAKE GROUNDCONTROL STRING=100**	The following event messages are displayed: StringMgr process successfully fonfigured Ground Control Authority has changed from EcDNull to fostest2 Ground Control starting fosswss*xx* for string 100.	

20.	Create a new xterm window and remote login to the real-time server. **%rlogin <real-time server id>** **%<password>** **%test** **%setenv SCRIPT RealTimeServer** **%source FosEnvVars** **%cd ../..** **%cd bin/sun_sparc_5-5** **%sc AM1 100 Ops**	The xterm window starts displaying	
21.	Click on the 'Config' pulldown menu in the Command Control window and select Command Verification and Telemetry Verification to set them to 'OFF"	CV and TV status in the Command Window show OFF.	

22.	Enter the following command in the Command Control window: FOP **INIT CHECK** Click on the 'RESUME' button. Click on the 'Send" button. Click on the 'Suspend' button.	The directive FOP INIT CHECK appears in the Ground Script of the Command Control window. The status of the directive in the Command Control window flashes Send/Cancel with yellow background. Status indicates 'Processed -2 | Sent to subsys | Send/cancel' Event messages 'StringMgr process successfully configured' and 'Protocol Info : FOP INIT with CLCW check successful' are displayed.	
23.	In the Command Control window CMD text field enter: CMD> **START <procname> TIME=HH:MM:SS** (command proc; procedure contains a critical command; HH:MM:SS close to current time) Click 'Allow' in response to the critical command.	The command proc is inserted into the Ground Script for execution. The procedure is executed at the start time designated. Event messages are received confirming the execution of the procedure steps. An allow/cancel message will flash in the status column of the Command Control window for the critical command.	
24.	At another userstation take ground control of string 100.	Event messages will appear indicating ground contrl has changed to another userstation.	

25.	In the Command Control window CMD text field enter: CMD> **START <procname>** (ground control proc)	An errr message is displayed stating user does not have ground control.	
26.	Click on 'Close' button of the Command Control window and select **Quit** from the drop down menu.	The Command Control window closed.	
27.	In the Control window ECL text field enter: ECL> **TAKE GROUNDCONTROL STRING=100**	Event message is displayed acknowledging user_id and workstation_id has ground control.	
28.	In the Control window ECL text field enter: ECL> **START <procname1> TIME=HH:MM:SS** (procname1= ground control procedure) ECL> **START <procname2> TIME=HH:MM:SS** (procname2= ground control procedure, HH:MM:SS is two seconds later than procname1 start time)	An event message for the first procedure is displayed indicating the start time. An event message indicating the procedure cannot be executed because of another procedure being processed.	
29.	Click on the 'Tools…' button in the Control window.	The Tools dialog window is displayed.	
30.	Select **Procedure_Control** and click 'OK'	The Procedure Control window is displayed.	
31.	Click on 'File' and select **Open** from the pull-down menu.	The procedure dialog box opened listing the procedures in the directory.	

32.	Select **Local1** from the directory listing and click 'OK'.	Procedure Local1 is listed in the Procedure Control window and the window is in the Step-Mode.	
33.	Click 'Auto' Click 'Resume' Click 'Suspend'	The Mode changed to Auto. The procedure started executing. The procedure stopped executing.	
34.	In the ECL text field of the Procedure Control window enter: ECL> **START TESTPROC1** and insert the directive in the procedure at case2:	The directive was inserted in the procedure.	
35.	Click on the 'Resume' button.	The procedure continued execution. When the START TESTPROC1 directive was executed the steps of TESTPROC1 were inserted into the existing procedure and executed. The existing procedure then continued to execute from the point TESTPROC1 was inserted.	
36.	At the end of execution of the previous procedure, in the Control window ECL text field enter: ECL> **BYE**	The user is logged off of the workstation.	
37.	End of test.		

OASIS/CSTOL Conversion Test Procedure

Test Case No: FUI-2080B

Test Configuration: See Appendix G

Test Support: An OASIS file to be used for conversion

Test Dependencies: The Translator/Converter.

Test Case Description:

This test is designed to verify the ability to test the functionality of the CSTOL translators ability to convert OASIS directives into useable ECL directives.

This test begins with an X-window is opened and the CSTOL translator utility is activated. The conversion is performed once to create a fully translated file. Following the successful completion of the first conversion, a second conversion will be performed to create another full conversion (the difference being that the input file has been modified). Following the completion of the second conversion, a third conversion will be run. This file will also be modified to reflect directives that did not convert fully. Error messages will appear in the partially converted file.

Success Criteria:

This test is considered successful when the conversions have been completed successfully (both types; full and partial) and error messages are displayed indicating the unconverted directives.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Logon to an FOS workstation	Access to the workstation will be obtained	

2.	Open a terminal window. Place the pointer on the screen background Press the Right most mouse button Select "**Programs**" from the menu Select "**Xterm**" from the menu Release the mouse button.	An X window will open.	
3.	**Full translation:** At the Unix prompt enter: %:**cd /fosb/test/am1/bin/sun_sparc_5-5**	sun_sparc_5-5 is where the executable file resides.	
4.	At the Unix prompt enter: %:**ls Fu***	Check the listing for the executable file FuCsTranslate.	
5.	Open a terminal window. Place the pointer on the screen background Press the Right most mouse button Select "**Programs**" from the menu Select "**Xterm**" from the menu Release the mouse button.	An X window will open.	
6.	At the Unix prompt enter: %:**cd /fosb/test/am1/data**	The data directory is where the "CSTOL" (input) files reside.	

7.	At the Unix prompt enter: %:**ls -la**	Check the listing for the "CSTOL" (input) files: FuCs_1 cstolmath	
8.	Place pointer in the first Xterm window with the directory path of /fosb/test/am1/bin/sun_sparc_5-5 and click to activate the screen and enter at the Unix prompt: %:**FuCsTranslate -i "/fosb/test/am1/data/FuCs_1" -o "/fosb/test/am1/data/fullcon.ecl"** Note: The above is all one command line and the path names may very depending where the input files reside and where the out put files need to reside.	This will activate the conversion utility and convert FuCs_1 to fullcon.ecl.	
9.	Place pointer in the second Xterm window with the directory path of /fosb/test/am1/data and click to activate the screen and enter at the Unix prompt: %:**ls -la**	The file fullcon.ecl should be in the data directory.	
10.	At the Unix prompt enter: %:**textedit fullcon.ecl &**	File fullcon.ecl will show a commented header about how to read the file and the results of the translation. It will also show an error count of zero (0) and warning count, if any. This file will show the comments from the CSTOL file that were carried over, and new comments that were added when necessary.	

11.	At the Unix prompt enter: %:**textedit FuCs_1 &**	Compare FuCs_1 to fullcon.ecl.	
12.	In the textedit window go to the file pull down menu. Using the left most mouse button Select **Quit** Note: Do this step twice, once in each texteditor window.	The textedit window will close.	
13.	**Modify the input file:** At the Unix prompt enter: %:**cp FuCs_1 Testinput_1**	This will create a copy of FuCs_1. The copy file Testinput_1 will be modified to reflect errors.	
14.	At the Unix prompt enter: %:**vi Testinput_1**	The vi editor will open Testinput_1.	
15.	Press the **[ESC]** key Type: **:set nu**	This will enable line numbering in the vi editor.	

16.	Arrow down to line 14 of the file. Arrow to 5:7 Press **Shift R** Type: **7:9**	Line 14 will be modified to read: VARIABLE $a = 1.5 7:9	
17.	Press **[ESC]** key Arrow down to line 17 Arrow to abcd efg Press **Shift R** Type: **zxdr adc**	Line 17 will be modified to read: DECLARE INPUT $c = “zxdr abc”	
18.	Press **[ESC]** key Arrow down to line 28 Arrow to abc Press **Shift R** Type: **zxd**	Line 28 will be modified to read: LET $a = $c ** (-$B + SIN(3 * SQRT(3+2)) + ((7 - 9 * $C) -50 / $zxd))	

19.	Press **[ESC]** key Type: **:wq**	The file Testinput_1 is modified and saved.	
20.	Place pointer in the first Xterm window with the directory path of /fosb/test/am1/bin/sun_sparc_5-5 and click to activate the screen and enter at the Unix prompt: %: **FuCsTranslate -i "/fosb/test/am1/data/Testinput_1" -o "/fosb/test/am1/data/errors_1.ecl"** Note: The above is all one command line and the path names may very depending where the input files reside and where the out put files need to reside.	This will activate the conversion utility and convert Testinput_1 to errors_1.ecl.	
21.	Place pointer in the second Xterm window with the directory path of /fosb/test/am1/data and click to activate the screen and enter at the Unix prompt: %:**ls -la**	The file errors_1.ecl should be in the data directory.	
22.	At the Unix prompt enter: %:**textedit errors_1.ecl &**	File errors_1.ecl will show a commented header about how to read the file and the results of the translation. It will also show an error count of zero (0) and warning count, if any. This file will show the comments from the CSTOL file that were carried over, and new comments that were added when necessary.	

23.	At the Unix prompt enter: %:**textedit Testinput_1 &**	Compare Testinput_1 to errors_1.ecl.	
24.	In the textedit window go to the file pull down menu. Using the left most mouse button Select **Quit** Note: Do this step twice, once in each texteditor window.	The textedit window will close.	
25.	**Partial Translation** **Modify the input file:** At the Unix prompt enter: %:**cp FuCs_1 Testinput_2**	This will create a copy of FuCs_1. The copy file Testinput_2 will be modified to reflect errors.	
26.	At the Unix prompt enter: %:**vi Testinput_2**	The vi editor will open Testinput_2.	
27.	Press the **[ESC]** key Type: **:set nu**	This will enable line numbering in the vi editor.	

28.	Arrow down to line 15 of the file. Press **i** for insert mode Press the **Return** key Press the **[ESC]** key Arrow up to line 15: Press **i** for insert mode Press the **TAB** key Type: **DECLARE VARIABLE $$b = 1.5 K -150 K :400 K**	Line 15 will be modified to read: DECLARE VARIABLE $$b = 1.5 K -150 K :400 K	

29.	Press **[ESC]** key Arrow down to line 19 Press **i** for insert mode Press the **Return** key Press the **[ESC]** key Arrow up to line 19: Press **i** for insert mode Press the **TAB** key Type: **DECLARE INPUT abc cde = "abcd efg"**	Line 19 will be modified to read: DECLARE INPUT abc cde = "abcd efg"	

30.	Press **[ESC]** key Arrow down to line 28 of the file. Arrow over to one space past the 3. Press **i** for insert mode Press the **space bar** Type: **DEG** Press **[ESC]** key Press **Shift A** to move to the end of the line Press the **space bar** Type: **DN**	Line 28 will be modified to read: LET $a = - 3 DEG + B#11010010 DN	

31.	Press **[ESC]** key Arrow down to line 30 of the file. Press **i** for insert mode Press the **Return** key Press the **[ESC]** key Arrow up to line 30: Press **i** for insert mode Press the **TAB** key Type: **;LET $a = 3 DEG + 5 DEG + 7** Press the **Return** key	Line 30 will be modified to read: ;LET $a = 3 DEG + 5 DEG + 7	

32.	Press **[ESC]** key Arrow down to line 32 of the file. Arrow over to $abc Press **i** for insert mode. Type: **abc def** To delete $abc Press **[ESC]** key Arrow to the $ Type: **xxxx**	Line 32 will be modified to read: LET $a = $c ** (-$B + SIN(3 * SQRT(3+2)) + ((7 - 9 * $C -50 / abc def))	

33.	Press **[ESC]** key Arrow down to line 35 of the file. Arrow over to the 3 Press **i** for insert mode. Press the space bar Type: **RAD** Press **[ESC]** key Arrow over to $b Press **i** for insert mode. Type: **abc def** To delete $b Press **[ESC]** key Arrow to the $ Type: **xx**	Line 35 will be modified to read: LET $a = -1*(-$B + 3 RAD + ((7 - 9 *$C) - 50 / abc def))	

34.	Press **[ESC]** key Arrow down to line 36 of the file. Press **Shift A** Press the **space bar** Type: **DEG**	Line 36 will be modified to read: LET $a = - 3 DEG	
35.	Press **[ESC]** key Arrow down to the beginning of line 39 of the file. Press **Shift R** Press **TAB** key Type: **SET FAN SPEED TO LOW**	Line 39 will be modified to read: SET FAN SPEED TO LOW	
36.	Press **[ESC]** key Arrow down to the beginning of line 40 Type: **dd**	Line 40 will be modified (deleted).	
37.	Press **[ESC]** key Arrow down to the beginning of line 40 Type: **dd**	Line 40 will be modified (deleted).	

38.	Press **[ESC]** key Type: **:wq**	The file Testinput_2 is modified and saved.	
39.	Place pointer in the first Xterm window with the directory path of /fosb/test/am1/bin/sun_sparc_5-5 and click to activate the screen and enter at the Unix prompt: %: **FuCsTranslate -i** "**/fosb/test/am1/data/ Testinput_2" -o "/fosb/test/am1/data/errors2.ecl"** Note: The above is all one command line and the path names may very depending where the input files reside and where the out put files need to reside.	This will activate the conversion utility and convert Testinput_2 to errors2.ecl.	
40.	Place pointer in the second Xterm window with the directory path of /fosb/test/am1/data and click to activate the screen and enter at the Unix prompt: %:**ls -la**	The file errors2.ecl should be in the data directory.	
41.	At the Unix prompt enter: %:**textedit errors2.ecl &**	File errors2.ecl will show a commented header about how to read the file and the results of the translation. It will also show an error count of eleven (11) and warning count of three (3). This file will show the comments from the CSTOL file that were carried over, and new comments that were added when necessary.	

42.	At the Unix prompt enter: %:**textedit Testinput_2 &**	Compare Testinput_2 to error2.ecl.	
43.	In the textedit window go to the file pull down menu. Using the left most mouse button Select **Quit** Note: Do this step twice, once in each texteditor window.	The textedit window will close.	
44.	End of test.		

EOC Timeline - Management

Test No.: PAS-2035B

Test Configuration: See Appendix G

Test Support: Predefined activities on the EOC user stations. A second user station must be available for permission testing.

Test Description:

This test will begin with the creation of scheduling plans and multiple timelines. The test will demonstrate the viewing options, saving capabilities and deleting functions. Permissions for scheduling to a resource and deleting a plan and activity is covered as well. The test will move into the cut/copy/paste functionality across plans as well.

Success Criteria:

The success of the test is based on managing multiple plans at one time; setting up user permissions in accordance to resources and ownership; and demonstrating the basic functionality with editing (cutting/copying/pasting) activities within a plan and across plans.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	
3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	

5.	Select the 'General Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The General Scheduler window appears.	
6.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
7.	Select the 'EOC Timeline' option. (Timeline 1) Click the 'OK' button.	The Tools dialog box closes. The EOC Timeline window appears.	
8.	Within the EOC Timeline select the 'Open' option under the File menu.	The Open dialog box appears.	
9.	Select the 'Master Plan' option. Enter a start date and time. **1997/172 00:00:00** Enter a stop date and time. **1997/175 00:00:00** Click the 'OK' button	The Open dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The requested date and time periods appear at the top on the timeline viewing area.	
10.	**Activity Scheduling** From the General Scheduler window, click the 'Filter By Resource' button and select AM1 MODIS.	AM1 MODIS appears on the Filter By Resource button.	
11.	Select the 'Activities' option from the 'Filter' menu.	A list of activities defined under the AM1 MODIS resource appears in the Activities field.	
12.	Select an activity for scheduling. Select the 'Master Plan:1' as the scheduling plan.	The selected activity and plan are highlighted. Default scheduling information appears.	
13.	Select the 'Impact' option under the Action menu.	The Impact button is selected.	

14.	Select the 'Start Time' and 'Stop Time' toggle buttons Enter a start date and time. **1997/172 02:00:00** Enter a stop date and time. **1997/172 03:00:00** Click the 'Schedule' button.	The activity is scheduled on the Master Plan:1. The activity appears on the timeline in the scheduled location.	
15.	Select the 'EOC Timeline' option. (Timeline 2) Click the 'OK' button.	The Tools dialog box closes. The EOC Timeline window appears.	
16.	Within the EOC Timeline select the 'Open' option under the File menu.	The Open dialog box appears.	
17.	Select the 'Master Plan' option. Enter a start date and time. **1997/172 00:00:00** Enter a stop date and time. **1997/175 00:00:00** Click the 'OK' button	The Open dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:2. The requested date and time periods appear at the top on the timeline viewing area.	
18.	Repeat the 'Activity Scheduling' steps. Schedule against the Master Plan:2.	The activity is scheduled on the Master Plan:2. The activity appears on the timeline in the scheduled location.	
19.	From timeline 1 select the 'Master Plan:2' option under the 'Plan' menu.	Timeline 1 snaps to the Master Plan:2.	

20.	Within timeline 2 select the ‘Open’ option under the File menu.	The Open dialog box appears.	
21.	Select the ‘Master Plan’ option. Enter a start date and time. **1997/174 00:00:00** Enter a stop date and time. **1997/175 00:00:00** Click the ‘OK’ button	The Open dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:3. The requested date and time periods appear at the top on the timeline viewing area.	
22.	Repeat the ‘Activity Scheduling’ steps. Schedule against the Master Plan:3.	The activity is scheduled on the Master Plan:3. The activity appears on the timeline in the scheduled location.	
23.	From timeline 1 select the ‘Master Plan:3’ option under the ‘Plan’ menu.	Timeline 1 snaps to the Master Plan:3.	
24.	From timeline 1 select the ‘Master Plan:1’ option under the ‘Plan’ menu.	Timeline 1 snaps to the Master Plan:1.	
25.	Select the ‘Close’ option under the ‘File’ menu.	A dialog box appears to prompt the user to save the plan.	
26.	Click the ‘Yes’ button.	The plan is saved and the Master Plan:1 closes. Timeline snaps to Master Plan:2.	
27.	Within timeline 1 select the ‘New’ option under the File menu.	The New dialog box appears.	

28.	Enter a new name. **New Plan** Enter a start date and time. **1997/172 00:00:00** Enter a stop date and time. **1997/175 00:00:00** Click the 'OK' button	The New dialog box closes. The timeline updates with the requested time period and plan name as New Plan:1. The requested date and time periods appear at the top on the timeline viewing area.	
29.	Repeat the 'Activity Scheduling' steps. Schedule against the New Plan:1.	The activity is scheduled on the New Plan:1. The activity appears on the timeline in the scheduled location.	
30.	Select the 'Save' option under the 'File' menu.	The plan is saved with the current information.	
31.	Select the 'Save As' option under the 'File' menu.	The Save Plan As dialog box appears.	
32.	Enter the plan name. **Stan Plan** Click the 'OK' button.	The plan is saved with the Stan Plan name and the Save As dialog box closes. The timeline display snaps to the new name and the New Plan option is replaced with Stan Plan under the Plans menu.	
33.	Within timeline 2 select the 'Stan Plan:1' option under the 'Plans' menu.	Timeline 2 snaps to the Stan Plan:1	
34.	Within timeline 1 select the 'Close' option under the 'File' menu.	A dialog box appears to prompt the user to save the plan.	

35.	Click the ‘Yes’ button.	The plan is saved and Stan Plan:1 closes on timeline 1 and 2. Timeline 1 and 2 snaps to Master Plan:2.	
36.	Within timeline 1select the “Delete’ option under the ‘File’ menu.	The Delete dialog box appears.	
37.	Select the ‘Stan Plan:1’ option in the Plans field. Click the ‘OK’ button.	A Confirm dialog box appears to delete the plan.	
38.	Click the ‘Yes’ button.	The Confirm dialog box closes. The Stan Plan:1 is deleted and the Delete Plan dialog box closes.	
39.	Within timeline 1select the “delete’ option under the ‘File’ menu.	The Delete dialog box appears. The Stan Plan:1 is not listed in the Plans field.	
40.	Click the ‘Cancel’ button.	The Delete dialog box closes.	
41.	Select the Load Setup option under the User Setup Menu.	The Load Setup dialog box appears.	
42.	Enter the following pathe and file name. **/home/fostest1/tl_config2** Click the ‘OK’ button.	The Load Setup dialog box closes. The timeline is updated with new resources stored with the tl_config2 file.	
43.	Use the vertical scroll bar to view the selected resources.	There are several additional resources with events, activities and view periods associated with them.	
44.	Within timeline 1 select the ‘Master Plan:2’ option under the ‘Plans’ menu.	Timeline 1 snaps to the Master Plan:2.	

45.	Repeat the 'Activity Scheduling' steps. Select an activity under the AM1 MISR resource and schedule against the Master Plan:2.	The activity is scheduled on the Master Plan:2. The activity appears on the timeline in the scheduled location.	
46.	Within timeline 1, select the 'Save' option under the 'File' menu.	The Master Plan:2 is saved with scheduled activities.	
47.	Select the 'Permissions' option under the 'File' menu.	The Permissions dialog box appears.	
48.	Within the Permissions dialog box select the 'Master Plan - EOCMaster' option in the Plans field.	The Permissions Summary field will update with the current permissions allowed for the plan.	
49.	Click the 'Edit' button.	The Permissions/Resources dialog box appears. The Plan is Master Plan and the Owner is EOCMaster.	
50.	Within the Permissions/Resources dialog box select the 'MISRScheduler' option from the User Role field.	The Selected Resources field is updated with the resources that the MISRScheduler has access to.	
51.	Select the 'AM1 MISR' option from the Selected Resources field. Click the 'remove' button.	The selected resource is removed from the Selected Resource field.	
52.	Select the 'AM1 MODIS' option from the Available Resources field. Click the 'Add' button.	The selected resource is added to the Selected Resource field.	
53.	Click the 'OK' button.	The Permissions/Resources dialog box closes. The Permissions Summary field within the Permissions dialog box is updated with the new information.	

54.	Within the Permissions dialog box click the 'OK' button.	The new permissions are stored with the Master Plan and the Permissions dialog box closes.	
55.	Log onto another User Station as MISRScheduler. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The User Station is running and the 'Control window' is displayed.	
56.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
57.	Select the 'General Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The General Scheduler window appears.	
58.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
59.	Select the 'EOC Timeline' option. Click the 'OK' button.	The Tools dialog box closes. The EOC Timeline window appears.	
60.	Within the EOC Timeline select the 'Open' option under the File menu.	The Open dialog box appears.	
61.	Select the 'Master Plan' option. Enter a start date and time. **1997/172 00:00:00** Enter a stop date and time. **1997/175 00:00:00** Click the 'OK' button	The Open dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The requested date and time periods appear at the top on the timeline viewing area.	

62.	Repeat the 'Activity Scheduling' steps. Select an activity under the AM1 MISR resource and schedule against the Master Plan:1 at the given time. 1997/172 01:00:00 - 01:30:00	A warning message dialog box appears indicating the activity failed to be scheduled. An event message indicates the user does not have permission to schedule on AM1 MISR.	
63.	Click the 'OK' button on the message dialog box.	The message dialog box closes.	
64.	Repeat the 'Activity Scheduling' steps. Select an activity under the AM1 MODIS resource schedule against the Master Plan:1 at the given time. 1997/172 01:00:00 - 01:30:00	The activity is scheduled on the Master Plan:1. The activity appears on the timeline in the scheduled location.	
65.	Select the "Delete' option under the 'File' menu.	The Delete dialog box appears.	
66.	Select the 'New Plan' option in the Plans field. Click the 'OK' button.	A message dialog box appears stating MISRScheduler does not have permission to delete the plan.. The Owner is the EOCMaster not the MISRScheduler.	
67.	Click the 'OK' button on the message dialog box.	The message dialog box closes.	
68.	Click the 'Cancel' button in the Delete dialog box.	The Delete dialog box closes.	
69.	**Cutting and Pasting Activities** Select the activity on the timeline that was scheduled by the EOC Master on the MISR resource. Click the 'Cut' button.	A error message dialog box appears. The MISRScheduler does not have permission to Cut events from AM1 MISR resource. The Owner is the EOC Master not the MISRScheduler.	
70.	Click the 'OK' button on the message dialog box.	The message dialog box closes.	

71.	Select the activity on the timeline that was scheduled by the EOCMaster on the MODIS resource. Click the 'Cut' button.	The activity disappears from the timeline.	
72.	Click the 'Impact' button. Click the 'Paste' button.	The activity appears on the timeline in its scheduled location.	
73.	At the EOC Master user station and within timeline 2, select the 'Open' option under the File menu.	The Open dialog box appears.	
74.	Select the 'Master Plan' option. Enter a start date and time. (Same period as Master Plan:2) **1997/172 00:00:00** Enter a stop date and time. **1997/175 00:00:00** Click the 'OK' button	The Open dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:4. The requested date and time periods appear at the top on the timeline viewing area.	
75.	Repeat the 'Activity Scheduling' steps. Select 4 activities under the AM1 MOPITT resource and schedule against the Master Plan:4. Note: Several activities will have mode changes associated with it. Verify the display on the timeline.	The activities are scheduled on the Master Plan:4. The activities appears on the timeline in the scheduled location with the associated mode changes.	
76.	Select the 4 activities on the timeline using the pointer and ctrl key. Click the 'Copy' button.	The activities remain on the timeline.	

77.	Select Master Plan:2 option under the Plans menu. Click the ‘Impact’ button. Click the ‘Paste’ button.	The copied activities appears on the timeline in their scheduled locations with the associated mode changes.	
78.	End of test.		

Contact Scheduler

Test Case No.: PAS-2040

Test Configuration: See Appendix G

Test Support: Test support consists of available services to create TDRSS and GN Contact Activities; the use of a NCC generator (test tool) to simulate the NCC interface; available FDF data for timeline events and scheduling calculations; and knowledge to adjust contact activities to fit the best possible profile of scheduling algorithms.

Test Description:

This test will demonstrate the ability to create contact activities and schedule them against the mission schedule. The test will consist on TDRSS and Ground contact scheduling. The use of batch scheduling is also demonstrated to verify the functionality of multiple scheduling and producing an optimized schedule of events.

Success Criteria:

Success of the test case is measure by the ability to create TDRSS and Ground Contact Activities; schedule contact activities; and optimize scheduling events.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	
3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	

4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
5.	Select the 'Activity Definer' option. Click the 'OK' button.	The Tools dialog box closes. Activity Definer window appears.	
6.	**Defining a TDRSS Contact Activity** Select the 'New' option under the File menu	The New dialog box appears.	
7.	Enter the activity name. **TDR-A** Select the 'AM1 COMMUNICATIONS' option under the resource button. Click the 'OK' button.	The New dialog box closes. The activity name and the selected resource appear in the Activity Definer window.	
8.	Under the appropriate menu options, select the services needed to define a TDRSS Contact Activity. (TDR-A) Uplink Activity Downlink Activity Tracking Activity NCC Code Select the 'Save' option under the File menu.	The activities are saved with the current information.	
9.	Repeat the Defining a TDRSS Contact Activity steps. (TDR-B) Select the 'Save' option under the File menu.	The activity is saved with the current information.	
10.	Select the 'New' option under the File menu.	The New dialog box appears.	

11.	Enter the activity name. **GN-A** Select the 'AM1 X-Band DP' option under the resource button. Click the 'OK' button.	The New dialog box closes. The activity name and the selected resource appear in the Activity Definer window.	
12.	**Defining a Ground Contact Activity** Under the appropriate menu options, select the services needed to define a Ground Contact Activity. (GN-A) Uplink Activity Downlink Activity Select the 'Save' option under the File menu. Select the 'Exit' option under the File menu.	The activity is saved with the current information. The Activity Definer closes.	
13.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
14.	Select the 'Communications Contact Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The Contact Scheduler window appears.	
15.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
16.	Select the 'EOC Timeline' option. Click the 'OK' button.	The Tools dialog box closes. The EOC Timeline window appears.	
17.	Within the EOC Timeline select the 'Open' option under the File menu.	The Open dialog box appears.	

18.	Select the 'Master Plan' option. Enter a start date and time. **1997/234 00:00:00** Enter a stop date and time. **1997/244 00:00:00** Click the 'OK' button	The Open dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The requested date and time periods appear at the top on the timeline viewing area.	
19.	Select the 'Load' option under the Set Up menu.	The Load Configuration dialog box appears.	
20.	Select the appropriate configuration file for this exercise. (stan3) Click the 'OK' button.	The timeline snaps to the selected configuration showing the necessary contact scheduling resources.	
21.	**TDRSS Contact Scheduling** From the Contact Scheduler window, click the 'Filter By Resource' button and select AM1 COMMUNICATIONS.	AM1 COMMUNICATION appears on the Filter By Resource button.	
22.	Select the 'TDR-A.1' activity for scheduling. Select the 'Master Plan:1' as the scheduling plan.	The selected activity and plan are highlighted.	
23.	Select the appropriate TDRS for the desired view period. Select the 'Start Time' and 'Stop Time' toggle buttons Enter a start date and time. (During a valid view period of the defined TDRSS) Enter a stop date and time. (10 minutes from the start) Click the 'Schedule' button.	The activity is scheduled on the Master Plan:1. The activity appears on the timeline in the scheduled location.	

24.	Place the pointer on the scheduled contact.	The start and end times for the contact appear in the status field. The contact is also indicated as 'Unsubmitted'.	
25.	**Ground Station Contact Scheduling** From the Contact Scheduler window, click the 'Filter By Resource' button and select AM1 X-Band DP.	AM1 X-Band appears on the Filter By Resource button.	
26.	Select the 'GN-A' activity for scheduling. Select the 'Master Plan:1' as the scheduling plan.	The selected activity and plan are highlighted.	
27.	Select the 'Start Time' and 'Stop Time' toggle buttons Enter a start date and time. (During a valid view period of the defined GN Station) Enter a stop date and time. (10 minutes from the start) Click the 'Schedule' button.	The activity is scheduled on the Master Plan:1. The activity appears on the timeline in the scheduled location.	
28.	Within the Contact Scheduler, click the Submit button.	The scheduled contact activity is transferred to NCC for confirmation. An event message will appear in the event display. The contact changes status to pending. Upon confirmation from NCC, the status changes to accepted and message appears on the event display.	
29.	**TDRSS Contact Batch Scheduling** From the Contact Scheduler window, click the 'Filter By Resource' button and select AM1 COMMUNICATIONS.	AM1 COMMUNICATION appears on the Filter By Resource button.	

30.	Select the 'TDR-A.1' activity for scheduling. Select the 'Master Plan:1' as the scheduling plan.	The selected activity and plan are highlighted.	
31.	Select the 'Batch' button. Select the 'Start Time' and 'Stop Time' toggle buttons Enter a start date and time. (During a valid view period of the defined TDRSS) Enter a stop date and time. (1 week from the start) Click the 'Schedule' button.	The activities are scheduled on the Master Plan:1. The activities appear on the timeline in the scheduled locations.	
32.	Place the pointer on the orbital events that are indicated on the AM1 Events resource.	Information about the orbital event appears in the status field.	
33.	Place the pointer on the HGA pointing angles that are indicated on the AM1 HGA resource.	Information about the HGA pointing angle appears in the status field.	
34.	Repeat the TDRSS Contact Scheduling steps for TDR-B. Schedule the activity in a period where the defined service TDRSS is not in view.	An error message dialog box appears indicating the activity is not scheduled due to the TDRSS service is unavailable.	
35.	Click the 'OK' button in the message dialog box.	The message dialog box closes.	
36.	Repeat the TDRSS Contact Scheduling steps for TDR-B. Schedule the activity in a period where the preceding TDRSS contact is too close for the HGA to slew in time for the contact.	An error message dialog box appears indicating the activity is not scheduled. The HGA slew rate is not fast enough to point at the requested TRDSS location.	

37.	Click the 'OK' button in the message dialog box.	The message dialog box closes.	
38.	Repeat the TDRSS Contact Batch Scheduling steps for TDR-B. Use the default settings of the scheduling algorithm. Schedule the batch job for 6 hours.	The activities are scheduled on the Master Plan:1. The activities appear on the timeline in the scheduled locations.	
39.	Repeat the TDRSS Contact Batch Scheduling steps for TDR-B. Modify the settings of the scheduling algorithm. Schedule the batch job for 6 hours.	The activities are scheduled on the Master Plan:1. The activities appear on the timeline in the scheduled locations.	
40.	Compare the scheduling results with previous Batch Scheduling contacts.	The information on the timeline for each scheduled contact will not be optimized to the requested scheduling periods.	
41.	End of test.		

Scheduling Load Uplink Activities

Test Case No.: PAS-2110B

Test Configuration: See Appendix G

Test Support: Predefined conditions consist of the spacecraft ATC buffer cleared of any assigned memory locations; activities scheduled on the master plan that will create an ATC load and DAS; activities scheduled on the master plan to create a partitioned ATC load and DAS; and several loads generated and available (RTS, Table, MPR, and FSW) for scheduling.

Test Description:

This test will demonstrate the generation of a Detailed Activity Schedule (DAS) and ATC loads. ATC loads are scheduled and verified against the requested and valid uplink periods. Binary (Microprocessor), Flight Software (FSW), Relative Time Sequence (RTS), and Table loads are scheduled and verified against the requested and valid uplink periods.

Success Criteria:

The test is considered successful when a DAS and ATC load are generated; ATC loads are scheduled within the requested and valid uplink periods; abundance of ATC commands are associated with a DAS and the generation results with partitioned products; Binary, FSW, RTS, and Table loads are scheduled within the requested and valid uplink periods.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	

3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
5.	Select the 'General Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The General Scheduler window appears.	
6.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
7.	Select the 'EOC Timeline' option. Click the 'OK' button.	The Tools dialog box closes. The EOC Timeline window appears.	
8.	Within the EOC Timeline select the 'Open' option under the File menu.	The Open dialog box appears.	
9.	Select the 'Master Plan' option. Enter a start date and time. **1997/239 00:00:00** Enter a stop date and time. **1997/241 00:00:00** Click the 'OK' button	The Open dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The requested date and time periods appear at the top on the timeline viewing area.	
10.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
11.	Select the 'Load Generator' option. Click the 'OK' button.	The Tools dialog box closes. The Load Generator window appears.	

12.	**DAS/ATC Load Generation** Click the 'DAS/ATC Load' toggle button. Select the Master Plan. Enter the DAS Time: Start Date **1997/240** Start Time **03:30:00** Stop Date **1997/240** Stop Time **06:00:00** Enter the Uplink Request: Start Date **1997/240** Start Time **01:00:00** Stop Date **1997/240** Stop Time **03:00:00** Click the 'Submit' button.	A DAS, Detail Activity Schedule, is generated. The ATC load is generated. The ATC load is scheduled within the uplink period.	
13.	Repeat the steps for Activity Scheduling and DAS/ATC Load Generation. Select a time period after the previous DAS/ATC Load Generation. (Abundance of ATC Commands)	A DAS, Detail Activity Schedule, is generated. The DAS is partitioned due to insufficient locations. The ATC load is generated and partitioned. The ATC load partitions are scheduled within the uplink periods generated.	
14.	Select the 'Quit' option under the 'File' menu.	The Load Generator window closes.	
15.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
16.	Select the 'Binary Load Builder' option. Click the 'OK' button.	The Tools dialog box closes. The Binary Load Builder window appears.	

17.	**Binary Load Scheduling** Select a MISR Microprocessor (MPR) load from the Load Catalog field. Click the 'Scheduling' button.	The Load Scheduling window appears. The load name and the associated uplink information that was defined during generation appear in the appropriate scheduling fields.	
18.	Enter a number of contacts to schedule the load against. (3) Select a Load/Uplink activity. Click the 'Schedule' button. Click the 'OK' button within the Confirm dialog box.	The load is scheduled on the timeline within the user specified uplink period at the computed time location(s) if there are contact schedules available.	
19.	Repeat the Binary Load Scheduling steps for a CERES load.	The load is scheduled on the timeline within the user specified uplink period at the computed time location(s) if there are contact schedules available.	
20.	Repeat the Binary Load Scheduling steps for a FSW load.	The load is scheduled on the timeline within the user specified uplink period at the computed time location(s) if there are contact schedules available.	
21.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
22.	Select the 'RTS Load Builder' option. Click the 'OK' button.	The Tools dialog box closes. The RTS Load Builder window appears.	
23.	**RTS Load Scheduling** Select the 'Open' option under the 'File' menu.	The Open dialog appears with a list of RTS loads available in the load catalog.	

24.	Select a RTS load from the Load Catalog field. Click the 'Scheduling' button.	The Load Scheduling window appears. The load name and the associated uplink information that was defined during generation appear in the appropriate scheduling fields.	
25.	Enter a number of contacts to schedule the load against. (3) Click the 'Schedule' button. Click the 'OK' button within the Confirm dialog box.	The load is scheduled on the timeline within the user specified uplink period at the computed time location(s) if there are contact schedules available.	
26.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
27.	Select the 'Table Load Builder' option. Click the 'OK' button.	The Tools dialog box closes. The TableLoad Builder window appears.	
28.	Repeat the RTS Load Scheduling steps for a Table load.	The load is scheduled on the timeline within the user specified uplink period at the computed time location(s) if there are contact schedules available.	
29.	End of test.		

Receive and Schedule Late Change Requests

Test Case No.: PAS-2180B

Test Configuration: See Appendix G

Test Support: Test support is needed in the following areas; pre-planned mission schedules with activities, and defined hard and soft command constraints.

Test Description:

The test will demonstrate the ability to schedule activities on the timeline; identify any constraint violations; create a DAS successfully; and regenerate a DAS with requested changes.

Success Criteria:

Success is based on the ability to identify constraint violations; generate a DAS; unlock a DAS (resources); and regenerate a DAS across the same period.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	
3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	

5.	Select the 'General Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The General Scheduler window appears.	
6.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
7.	Select the 'EOC Timeline' option. Click the 'OK' button.	The Tools dialog box closes. The EOC Timeline window appears.	
8.	Within the EOC Timeline select the 'Open' option under the File menu.	The New Plan dialog box appears.	
9.	Select the Plan Name. **Master Plan** Enter a start date and time. **1997/243 00:00:00** Enter a stop date and time. **1997/245 00:00:00** Click the 'OK' button	The Open Plan dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1.	
10.	**Activity Scheduling** From the General Scheduler window, click the 'Resource' button and select a resource.	The resource appears on the Resource button.	
11.	Select the 'Activities' option from the 'Filter' menu.	A list of activities defined under the resource appears in the Activities field.	

12.	Select the an activity for scheduling. (Activity must violate a soft constraint) Select the 'Master Plan:1' as the scheduling plan.	The selected activity and plan are highlighted. Default scheduling information appears.	
13.	Select the 'Impact' option under the Action menu.	The Impact button is selected.	
14.	Insert appropriate start and stop times for the activity. Click on the Schedule button.	The activity will appear on the timeline in the specified scheduled location. The activity will appear with the violation patterns indicated.	
15.	Repeat the Activity Scheduling steps for scheduling activities that would violate a hard constraint.	The activity will appear on the timeline in the specified scheduled location. The activity will appear with the violation patterns indicated.	
16.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
17.	From the Control window, click on the Tools button.	The Tools dialog box appears.	
18.	Select the Load Generate option. Click the 'OK' button	The Tools dialog box closes. The Load Generate window appears.	
19.	**Load Generate Window** Select the DAS/ATC toggle button. Select the Master Plan from the Plans field. Input a valid DAS time. Input a valid Uplink Request. Click the 'Submit' button.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Failed status.	

20.	Select the failed DAS in the Jobs Completed field. Click the 'View Constraints' button.	A Constraint dialog box appears with failed reason stated within the text field.	
21.	Verify the violations are correct and click the 'Close' button to close out the box.	The constraint Violation dialog box closes.	
22.	Within the timeline display select the activity violating the hard constraint. Click the 'Cut' button to unschedule the activity.	The activity is removed from the timeline.	
23.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
24.	Repeat the Load Generating steps for a new DAS which will include the scheduled activities.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. The job status will reach a pending state.	
25.	Select the job in the que. Click the 'View Constraints' button.	A Constraint dialog box appears with the soft constraint violation listed in the text field.	
26.	Click the 'Approve' button.	The Constraint dialog box closes. The DAS process accepts the soft constraint. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Completed status. An Uplink process for the ATC load will result with a Complete status.	
27.	**Unlock the DAS** Within the Load Generate window select the 'Show Locks' under the Lock Times menu.	The Locks dialog box appears.	

28.	Select the resource with the activity violating the soft constraint. Enter a new time that occurs before the actual processed DAS time. Click the 'OK' button.	The Lock dialog box closes. The selected resource is unlocked to new time input. The timeline will update with the new information.	
29.	Within the timeline display select the activity violating the soft constraint. Click the 'Cut' button to unschedule the activity.	The activity is removed from the timeline.	
30.	Repeat the Activity Scheduling steps for scheduling activities that wouldnot violate a constraint.	The activity will appear on the timeline in the specified scheduled location.	
31.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
32.	Late Change Select the Late Change toggle button. Select the Master Plan from the Plans field. Select the DAS that is being changed in the Completed field. Input the valid DAS start time. Click the 'Submit' button.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Completed status. An Uplink process for the ATC load will result with a Complete status.	
33.	End of test.		

What-If Planning & Scheduling

Test Case No.: PAS-2190B

Test Configuration: See Appendix G

Test Support: Predefined activities on the EOC user stations. A second user station must be available for what-if testing.

Test Description:

This test will begin with the creation of what-if plans on the timeline. The test will demonstrate the viewing options, saving capabilities and deleting functions. The effects to the Master Plan is also demonstrated with the what-if exercises. The test will move into the cut/copy/paste functionality across plans as well.

Success Criteria:

The success of the test is based on creating what-if plans; showing no affects to the Master Plan as what-if plans are saved and deleted; and demonstrating the privileges in accordance with plan ownership for using the cut/copy/paste functionality.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	
3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	

5.	Select the 'General Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The General Scheduler window appears.	
6.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
7.	Select the 'Timeline' option. Click the 'OK' button.	The Tools dialog box closes. The Timeline window appears.	
8.	Within the Timeline select the 'Open' option under the File menu.	The Open Plan dialog box appears.	
9.	Select the 'Master Plan' option. Enter a start date and time. **1997/178 00:00:00** Enter a stop date and time. **1997/180 00:00:00** Click the 'OK' button	The Open Plan dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The requested date and time periods appear at the top on the timeline viewing area.	
10.	Within the Timeline select the 'New' option under the File menu.	The New Plan dialog box appears.	

11.	Enter the New Plan Name. **STAN1** Enter a start date and time. (Same as Master Plan) **1997/178 00:00:00** Enter a stop date and time. (Same as Master Plan) **1997/180 00:00:00** Click the 'OK' button	The New Plan dialog box closes. The timeline updates with the requested time period and plan name as STAN1:1. The requested date and time periods appear at the top on the timeline viewing area.	
12.	**Activity Scheduling** From the General Scheduler window, click the 'Filter By Resource' button and select AM1 MODIS	AM1 MODIS appears on the Filter By Resource button.	
13.	Select the 'Activities' option from the 'Filter' menu.	A list of activities defined under the TBD resource appears in the Activities field.	
14.	Select the 'MODIS_ATC1.1 activity for scheduling. Select the 'STAN1:1' as the scheduling plan.	The selected activity and plan are highlighted. Default scheduling information appears.	
15.	Select the 'Impact' option under the Action menu.	The Impact button is selected.	

16.	Select the 'Start Time' and 'Stop Time' toggle buttons Enter a start date and time. **1997/178 02:00:00** Enter a stop date and time. **1997/178 03:00:00** Click the 'Schedule' button.	The activity is scheduled on the STAN1:1. The activity appears on the timeline in the scheduled location.	
17.	Repeat the 'Activity Scheduling' steps to schedule two additional activities against the STAN1:1. (MODIS, MOPITT)	The activities are scheduled on the STAN1:1. The activities appear on the timeline in the scheduled locations.	
18.	Within the STAN1:1 click the 'Save' button.	The STAN1:1 plan is saved with the current information.	
19.	Select the 'Master Plan:1' option under the 'Plans' menu.	The Master Plan:1 snaps to the timeline. The activities scheduled and saved to STAN1:1 will not appear on the Master Plan:1.	
20.	Select the 'STAN!:1' option under the 'Plans' menu.	The STAN1:1 snaps to the timeline.	
21.	Select an activity on the timeline. Click the 'Cut' button.	The selected activity is removed from the STAN1:1 timeline.	
22.	Click the 'Save' button.	The STAN1:1 plan is saved with the current information.	
23.	Select the 'Close' option under the 'File' menu.	A Confirm dialog box appears to save the plan.	
24.	Click the 'Yes' button.	The Confirm dialog box closes. The STAN1:1 plan closes and the timeline snaps to Master Plan.1	

25.	Within the Timeline select the 'New' option under the 'File' menu.	The New Plan dialog box appears.	
26.	Enter the New Plan Name. **STAN2** Enter a start date and time. (Same as Master Plan) **1997/178 00:00:00** Enter a stop date and time. (Same as Master Plan) **1997/180 00:00:00** Click the 'OK' button	The New Plan dialog box closes. The timeline updates with the requested time period and plan name as STAN2:1. The requested date and time periods appear at the top on the timeline viewing area.	
27.	Repeat the 'Activity Scheduling' steps to schedule two additional activities against the STAN2:1. (MODIS, MOPITT)	The activities are scheduled on the STAN2:1. The activities appear on the timeline in the scheduled locations.	
28.	Select the 'Master Plan:1' option under the 'Plans' menu.	The Master Plan:1 snaps to the timeline. The activities scheduled and saved to STAN2:1 will not appear on the Master Plan:1.	
29.	Select an activity on the timeline. (AM1_ATC0.1) Click the 'Copy' button.	The activity remain on the timeline.	
30.	Select the 'STAN2:1' option under the 'Plans' menu.	The STAN2:1 snaps to the timeline.	
31.	Click the 'Impact' button. Click the 'Paste' button.	The copied activities appears on the timeline in their scheduled locations.	
32.	Within the STAN2:1 click the 'Save' button.	The STAN2:1 plan is saved with the current information.	

33.	Select the ‘Close’ option under the ‘File’ menu.	A Confirm dialog box appears to save the plan.	
34.	Click the ‘Yes’ button.	The Confirm dialog box closes. The STAN2:1 plan closes and the timeline snaps to Master Plan.1	
35.	Select the ‘Open’ option under the ‘File’ menu.	The Open Plan dialog box appears.	
36.	Select the ‘STAN1’ option. Enter a start date and time. (Same as Master Plan) **1997/178 00:00:00** Enter a stop date and time. (Same as Master Plan) **1997/180 00:00:00** Click the ‘OK’ button	The Open dialog box closes. The timeline updates with the requested time period and plan name as STAN1:1. The requested date and time periods appear at the top on the timeline viewing area.	
37.	Select the ‘Delete’ option under the ‘File’ menu.	The Delete Plan dialog box appears.	
38.	Select the ‘STAN2’ option from the list. Click the ‘OK’ button.	A Confirm dialog box appears to delete the plan.	
39.	Click the ‘Yes’ button.	The Confirm dialog box closes. The Delete Plan dialog box closes. The plan is deleted.	
40.	Select the ‘Master Plan:1’ option under the ‘Plans’ menu.	The Master Plan:1 snaps to the timeline.	
41.	Select the ‘Close’ option under the ‘File’ menu.	A Confirm dialog box appears to save the plan.	
42.	Click the ‘Yes’ button.	The Confirm dialog box closes. The Master Plan:1 closes and the timeline snaps to Stan1.1	
43.	Within the Timeline select the ‘Open’ option under the File menu.	The Open Plan dialog box appears.	

44.	Select the 'Master Plan' option. Enter a start date and time. (Same as previous) **1997/178 00:00:00** Enter a stop date and time. (Same as previous) **1997/180 00:00:00** Click the 'OK' button	The Open Plan dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The requested date and time periods appear at the top on the timeline viewing area. Note the activity that was copied to STAN2 was not deleted from the Master Plan.	
45.	Select the 'STAN1:1' option under the 'Plans' menu.	The STAN1:1 snaps to the timeline.	
46.	Select an activity on the timeline. Click the 'Copy' button.	The activity remain on the timeline.	
47.	Select the 'Master Plan:1' option under the 'Plans' menu.	The Master plan:1 snaps to the timeline.	
48.	Click the 'Impact' button. Click the 'Paste' button.	The copied activities appears on the timeline in their scheduled locations.	
49.	Log onto another User Station as MISRScheduler. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The User Station is running and the 'Control window' is displayed.	
50.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
51.	Select the 'General Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The General Scheduler window appears.	
52.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	

53.	Select the 'Timeline' option. Click the 'OK' button.	The Tools dialog box closes. The Timeline window appears.	
54.	Within the Timeline select the 'Open' option under the File menu.	The Open Plan dialog box appears.	
55.	Select the 'Master Plan' option. Enter a start date and time. (Same as EOC Master Plan) **1997/178 00:00:00** Enter a stop date and time. (Same as EOC Master Plan) **1997/180 00:00:00** Click the 'OK' button	The Open Plan dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The requested date and time periods appear at the top on the timeline viewing area.	
56.	Within the Timeline select the 'New' option under the File menu.	The New Plan dialog box appears.	
57.	Enter the New Plan Name. **MISR1** Enter a start date and time. (Same as EOC Master Plan) **1997/178 00:00:00** Enter a stop date and time. (Same as EOC Master Plan) **1997/180 00:00:00** Click the 'OK' button	The New Plan dialog box closes. The timeline updates with the requested time period and plan name as MISR1:1. The requested date and time periods appear at the top on the timeline viewing area.	

58.	Repeat the 'Activity Scheduling' steps. Select the TBD activity under the AM1 MOPITT resource and use the default scheduling information to schedule against the MISR1:1.	The activity is scheduled on the MISR1:1. The activity appears on the timeline in the scheduled location.	
59.	Within the MISR1:1 click the 'Save' button.	The MISR1:1 plan is saved with the current information.	
60.	Select an activity on the timeline. Click the 'Copy' button.	The activity remain on the timeline.	
61.	Select the 'Master Plan:1' option under the 'Plans' menu.	The Master plan:1 snaps to the timeline.	
62.	Click the 'Impact' button. Click the 'Paste' button.	A message dialog box appears denying scheduling permission on the AM1 MOPITT resource on the Master Plan.	
63.	Click the 'OK' button.	The message dialog box closes.	
64.	End of test.		

DAS Generation

Test Case No.: PAS-2200B

Test Configuration: See Appendix G

Test Support: Test support consists of pre-defined activities and procedures. The Master Plan will contain scheduled activities and load uplinks. Support Tools consist of the Activity Definer, General Scheduler, Timeline, BAP Definer, Ground Script Display, and Load Generator.

Test Description:

This test will begin with creating a test bed of activities needed to formulate an ATC load, violate command constraints, and populate a DAS period. The DAS/ATC is generated at this point to verify the capability to check ground directives against schedule constraints. The notification of constraint violations should appear during DAS generation. Hard constraint violations are tested which should prohibit DAS\ATC generation. The performance of creating a DAS with 1000 activities is tested as well.

Success Criteria:

The success of the test is based on the ability to flag constraint violations and display their definitions; the ability to remove the violating activities; the ability to create a DAS across the requested time period; and the ability to create a DAS with specified load outputs within a short period of time.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	

3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
5.	Select the 'General Scheduler' option. Click the 'OK' button.	The Tools dialog box closes. The General Scheduler window appears.	
6.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
7.	Select the 'EOC Timeline' option. Click the 'OK' button.	The Tools dialog box closes. The EOC Timeline window appears.	
8.	Within the EOC Timeline select the 'Open' option under the File menu.	The New Plan dialog box appears.	
9.	Select the Plan Name. **Master Plan** Enter a start date and time. **1997/241 00:00:00** Enter a stop date and time. **1997/245 00:00:00** Click the 'OK' button	The Open Plan dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1.	
10.	**Activity Scheduling** From the General Scheduler window, click the 'Resource' button and select a resource.	The resource appears on the Resource button.	

11.	Select the 'Activities' option from the 'Filter' menu.	A list of activities defined under the resource appears in the Activities field.	
12.	Select the an activity for scheduling. (Activity must not violate a constraint) Select the 'Master Plan:1' as the scheduling plan.	The selected activity and plan are highlighted. Default scheduling information appears.	
13.	Select the 'Impact' option under the Action menu.	The Impact button is selected.	
14.	Click on the Schedule button.	The activity will appear on the timeline in the specified scheduled location.	
15.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
16.	From the Control window, click on the Tools button.	The Tools dialog box appears.	
17.	Select the Load Generate option. Click the 'OK' button	The Tools dialog box closes. The Load Generate window appears.	
18.	**Load Generate Window** Select the DAS/ATC toggle button. Select the Master Plan from the Plans field. Input a valid DAS time. Input a valid Uplink Request. Click the 'Submit' button.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Completed status. An Uplink process for the ATC load will result with a Complete status.	
19.	Repeat the Activity Scheduling steps for scheduling a Proc under the AM1 resource on the timeline.	The Proc will appear on the timeline in the specified scheduled location.	
20.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	

21.	Repeat the Load Generating steps for a new DAS which will include the scheduled Proc.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Completed status. An Uplink process for the ATC load will result with a Complete status.	
22.	Repeat the Activity Scheduling steps for scheduling activities that would violate hard and soft constraints.	The activities will appear on the timeline in the specified scheduled location. The activities will appear with their violation patterns indicated.	
23.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
24.	Repeat the Load Generating steps for a new DAS which will include the scheduled activities.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Failed status.	
25.	Select the failed DAS in the Jobs Completed field. Click the 'View Constraints' button.	A Constraint dialog box appears with failed reason stated within the text field.	
26.	Verify the violations are correct and click the 'Close' button to close out the box.	The constraint Violation dialog box closes.	
27.	Within the timeline verify the resource limits were not exceeded for the power and SSR totals.	The graphs will indicate a plot below the horizontal maximum limit line.	
28.	Within the timeline display select the activity violating the hard constraint. Click the 'Cut' button to unschedule the activity.	The activity is removed from the timeline.	
29.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	

30.	Repeat the Load Generating steps for a new DAS which will include the scheduled activities.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. The job status will reach a pending state.	
31.	Select the job in the que. Click the 'View Constraints' button.	A Constraint dialog box appears with the soft constraint violation listed in the text field.	
32.	Click the 'Approve' button.	The Constraint dialog box closes. The DAS process accepts the soft constraint. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Completed status. An Uplink process for the ATC load will result with a Complete status.	
33.	Within the General Scheduler, repeat the Activity Scheduling steps to schedule the necessary BAPs that would provide at least 1000 activities within a 24 hour time period.	The activities will appear on the timeline in the specified scheduled location. The activities will appear with their violation patterns indicated.	
34.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
35.	Repeat the Load Generating steps for a new DAS which will include the scheduled activities.	The job is submitted to the queue and the process will appear in the Jobs in Queue field. Upon completion the job will appear in the Jobs Completed field. The DAS will result with a Completed status. An Uplink process for the ATC load will result with a Complete status.	
36.	End of test.		

Command Generation

Test Case No: 2001B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, DMS, RMS, CMS, CMD, FUI , sc

Test Case Description:

This test will verify the following functions of the Command Generation:

a. Encase packets within a command link transmission unit.
b. Monitor command link control words (CLCWs) from the spacecraft to ascertain status of the command link.
c. Support the generation of FARM control commands.
d. append the necessary acquisition sequence to the CLTU(s) prior to transmission to EDOS.
e. Append the necessary gap to the CLTU prior to transmission to EDOS.

Success Criteria:

This test is successful when all of the above functions pass.

Note:

- Parameters inside the <> will be provided at run time.
- When necessary in this test, a displayed window may be resized and/or relocated in order to see view data as related to a specific step.

Step Id	Action	Remark/Expected Result/Output	Pass/ Fail
1.	Log onto a EOC workstation, and open a terminal window. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4)	Username: **fostest2** Password: *************	

2.	From a new terminal window: Starts the Data Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Data Server processes are running.	
3.	From a new terminal window: Starts the Real-Time Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Real-Time Server processes are running.	
4.	From a new terminal window: Logs onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
5.	Click on "Tools" button.	The Tool Selection Dialog Box will appear on the screen.	
6.	Selects **Events_Display-Global** from the Tool Selection Dialog Box.	The Event Display window will appear on the screen.	
7.	At an user station, connect to a real-time operational string. From the Control window enter the following ECL directive ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	Verify the following messages appear in the Event Display window: Successfully connected to string 100".	

8.	Take CAC privilege. Using the ECL command line in the Control window enter ECL>**TAKE COMMAND STRING = 100**	An event message via event display indicating privileges have been granted. Message indicates "Command Authority starting 'hostname' for string 100. (Note: EOC operator now has the authorization to issue individual commands in real time. For more information regarding Command authorization please refer to test case CMD-2000B)	
9.	Using the ECL command line in the Control window enter ECL>**TAKE GROUNDCONTROL STRING=100**	An event message via event display indicating privileges have been granted. Message indicates "Ground Control starting 'hostname' for string 100.	
10.	'Click on Tools button'		
11.	Select Command_Control from the Tool Selection Dialog Box. Click 'OK'	Tools selection dialog box appears; Command_Control is displayed in the 'selection' text box. Command Control window is displayed. A small dialog box with the title "CCW/CMW" appears on top of Command Control window prompting user to enter String and Spacecraft Id.	
12.	Enter String id (ex. 100) Enter Spacecraft ID (ex. AM1) Click "OK" on "CCW/CMW dialog box.	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS	

13.	Start ‘sc’ simulator/Command Tool. From a terminal window enter the following: **% rlogin <hostname> where hostname= real-time server** **% cd /fosb/test/am1/scripts/setup** **% setenv SCRIPT RealTimeServer** **% source FosEnvVars** **% cd /fosb/test/am1/bin/sun_sparc_5-5** **% sc AM1 100 Ops**	CLCWs will be generated. The following messages will be displayed ***sc waiting for messages*** CLCW before send to FOP 0	
14.	From the Command Control window enter the following directive to set VR value to the requested value: Cmd:> **FOP INIT VR=0** Click ‘Resume’ Click ‘Send’	Type BC control command (set VR) is generated. Spacecraft frame sequence number is initialized to 0 and will be shown on Commanding Ground Parameter Display. View events display for the following messages: CLTU id SetVr placed in command data block number 1 Protocal Info: FOP initialiing set Vr command Command Data Block number 1 sent to EDOS Protocal Info: Successful FOP INIT with BC cmd	

15.	Enter the following to change directory to tlmarchive: %: **cd /fosb/test/am1/tlmarchive** **% ls -ltr**	A logging file for the command link control word (CLCW.log) is generated with current date and time stamp in directory /fosb/dev/am1/tlmarchive.	
16.	Running Unix tools named od to dump the file in hex format, and generate a report name CLCW.dat**.** %: **od -x CLCW.log > output file** Print **output file**	Value shown "000" (which means No Fault Detected" in the Status field of the Command Link Control Word Format in CLCW.log (Note: Refer to ICD-106 page 43 to locate the field for Status field in command link control word format).	
17.	Initiate Command Ground Parameter Display Page Click 'Tools' Button Select 'CMD_GRD_CFG' Click 'OK'	The Tools dialog box appears The name of the Tool selected appears in the selection text box.	
18.	Monitor on Commanding Ground Parameter Display for any CLCW status below: CLCW wait flag CLCW retransmit flag CLCW lockout flag	The information is correct and verified.	

19.	**<u>Octal dump command data block</u>**: %: **cd /fosb/test/am1/reports** (skip if already set). %: **ls -ltr** %: **od -x CDB.log > output file**	A logging file for the command data block (CDB.log) is generated with current date and timestamp in directory /fosb/int/am1/reports. CDB.log is generated.	
20.	Print **output file** % lp < **output file** >	A hard copy is sent to the printer.	
21.	Observe CDB.log and bit busting data.	Verify in the CDB.log file contains information regarding ByPass flag and Control Command flag. The ByPass flag and Control Command flag are shown 11 (values in hex). (Note: Refer to ICD-106 page 31 to locate the fields for ByPass flag and Control Command flag in command data block)	
22.	Observe CDB.log and bit busting data.	Verify in the CDB.log file contains information regarding Control Command Type and FARM code. The Control Command Type should be “0000000”, FARM code should be “0000000”, and qualifying data should be “00000000’. (Note: Refer to CCSDS recommendation for telecommand: data routing service to locate the fields for Control Command Type and for FARM code.)	

23.	From the Command Control window enter the following directive Cmd:> **CMDCFG PLOP=1**	Monitor for Plop 1 selected flag on Commanding Ground Parameter Display. Note: PLOP 1 is the default	
24.	<u>Issues individual commands in real time:</u> From the Command Control window input line enter a command directive. Cmd:> **/AST_TURN_ON_C_TDP** Click the 'Resume' button Click the "Send" button	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
25.	Repeat octal dump command data block step.	A logging file for the command data block (CDB.log) is generated with current date and timestamp in directory /fosb/test/am1/reports. CDB.log is generated.	
26.	Print CDB.log. % lp <CDB.log>	A hard copy is sent to the printer.	

27.	Observe CDB.log and analyze command data block.	The command data block contains Ground Message Header (24 bytes), acquisition sequence, CLTU and gap (8 bytes of all 0's). Verify that in the Ground Message Header, value in the 14th byte should reflect "002a'" in hex which is dedicated for Mission's Spacecraft Identification AM1. (Reference to Table 5.1.2.1-1. EDOS Ground Message Header and Table 5.1.3-2.)	
28.	Observe CDB.log and analyze command data block.	Verify in the CDB.log file contains information regarding packets about command link transmission unit (CLTU). Note: (CLTU consists of a start sequence which is "eb90" in hex, the encoded transfer frame (consists of 5 octets header + 10 octets data packets + 2 octets TFEC) and tail sequence which is "555555555555" in hex.	
29.	Observe CDB.log and analyze command data block.	Verify in the CDB.log file contains the acquisition sequence of 25 bytes long of all "aa" (hex value). (Note: refer to ICD-106 for more details on acquisition sequence.)	
30.	Look into the directory: **/fosb/test/am1/reports**	Another logging file for the command data block (CDB.log.nrz) is generated with current date and timestamp in directory /fosb/dev/am1/reports.	
31.	**Octal dump CDB.log.nrz**: %: **od -x CDB.log.nrz >&CDB.nrz**	CDB.nrz is generated.	

32.	Print CDB.nrz % lp <CDB.nrz>	A hard copy is sent to the printer.	
33.	Observe CDB.nrz.	Verify in the CDB.nrz file contains information about command data in NRZ-M format. The EDOS ground message header (24 bytes) in CDB.nrz is the same as in CDB.log. The rest are differ from CDB.log.	
34.	<u>Send another command</u>: From the Command Control window input line enter a command directive. Cmd:> **/AST_TURN_OFF_C_TDP** Click the 'Resume' button Click the 'Send' button	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
35.	Repeat octal dump command data block step.	A logging file for the command data block (CDB.log) is generated with current date and timestamp in directory /fosb/test/am1/reports. CDB.log is generated.	

36.	Print CDB.log. % lp <CDB.log>	A hard copy is sent to the printer.	
37.	Observe CDB.log and analyze command data block.	Bit busting the data to verify that we are building and applying the 1553-B header correctly. (Note: Refer to ICD-106 to locate the field for the command destination which is 1553B Command Word.)	
38.	Observe CDB.log and analyze command data block.	Verify in the CDB.log file contains the necessary gap: 8 bytes of all 0's append to the CLTU.	
39.	Observe CDB.log and analyze command data block.	Verify in the CDB.log file contains information regarding information about spacecraft identification for the CTIU. Its value in hexadecimal should be "a9" for CTIU1 which is the active CTIU by default. (Note: Refer to ICD-106 to locate the field for CTIU.)	

40.	Enter ECL directive using it raw (hex formatted command): ECL> /RAW 0x502230000001 Click 'Send' button Click 'Allow' button	Verify the user is prompted to enter "Allow" or "Cancel". The command is flagged as critical. An Allow or Cancel messages flashes in status column. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS. Verify that the directive is executed.	
41.	Repeat Octal dump steps.		
42.	From User Station (optional): a. Enter the following to change directory to setup: %: cd /fosb/test/am1/scripts/setup b. Enter MyKill.	All processes has been brought up before will be killed.	
43.	Log off User Station.		
44.	End of test.		

Ground Script Control & Manipulation Test Procedure

Test Case No: Command 2010B

Test Configuration: See Appendix G

Test Support: EOC startup scripts. Generated DAS, FOS User Interface, DMS, RMS, CMS, CMD and files “hw.db’ and “user.db” contain a list of valid EOC user stations and valid userid, respectively, that are authorized by for CAC and Ground Control.

Test Description:

This test demonstrates that a user with CAC privileges is provided the tools necessary to initiate the execution of a ground script and manipulate ground script execution. Manipulation of this ground script includes; enable/disable of individual directives, transferring the execution of a directive, merging a procedure, suspending, resuming and termination of the currently executing ground script, executing ground script in confirmation mode (Step mode) and Auto mode. The user will have the ability to search for a specified text string, command or procedure. In addition, this test will verify the displays provided to the users for validating proper execution of ground script directives. Prior to executing the ground script the user can view the contents of the ground script from the Ground Script Display window.

Success Criteria:

Successful demonstration of CAC capabilities to select a valid ground script, initiate execution of the ground script, manipulate ground script control and terminate the ground script via user directives. The procedure contained in ground script expands and executes. The user can specify a find criteria based on a text string, command or procedure and the system will search the ground script. The ground script should process command directives for the spacecraft. When the ground script is placed in confirmation mode (step mode) the user is prompted for each directive and has the option to cancel or confirm pending commands. The ground script can be viewed from the Ground Script Display window.

Step Id	Action	Expected Result/Output	Pass/ Fail

1.	Log onto a EOC workstation, and open a terminal window.	A blank desktop area with an xterm window	
2.	Initiate Data Server, Real-time and User Station Startup scripts.	The EOC system is up and running	
3.	Invoke the Event Display window by entering the following in the ECL directive line Click the 'TOOLS' button on the Control window Select Event Display-Global Click 'OK'	A list box appears Event Display-Global appears in the selection filter box An event display window appears	
4.	Connect to a real-time string. From the Control window enter the following ECL directive ECL> **STRING CONNECT STRING=100 CONFIG= MIRROR**	String Manager will attempt to connect to a real-time string when this process is complete, an event message: 'Successfully connected to string 100'.	
5.	Take CAC privilege. Using the ECL command line in the Control window enter ECL>**TAKE COMMAND STRING = 100** ECL> **TAKE GROUNDCONTROL STRING=100**	An event message via event display indicating privileges have been granted. Message should indicate userid and workstation hostname.	

6.	Select the desired ground script to execute the times will be based on the DAS generated. View the integrated report file associated with the selected DAS.		
7.	Open a terminal window. %**cd /fosb/test/am1/reports/integrated** %**ls -ltr**	An xterm window pops up. Displays a list of files in that directory the most recent fill file will appear at the bottom of the directory.	
8.	To view the ASCII file Integrated Report enter % **more "filename"**	The contents of the file are displayed. Note, the start and stop times of the DAS.	
9.	Initiate the Ground Script Display Window. Click on the Tools button from Control window. Select Ground Script Display. Click OK.	The Tools dialog box appears. Ground Display Window appears in the selection text box. The Ground Script Display Window is displayed.	
10.	View ground script prior to execution Select a ground script to display. Using the "File" pull down menu in Command Control window select the "Open" option.	A time selector dialog box appears	

11.	Click ‘Select Time’ Enter the start time of the ground script selected for display **>YYYY/DDD HH:MM:SS.mmm** Press the Enter key. Enter the stop time of the ground script selected for display. >**YYYY/DDD HH:MM:SS.mmm** Press the Enter key. Click ‘OK’ Click ‘OK’	The times entered will be displayed in the start and stop time text fields. The Stop and Start times entered will be updated at the bottom of the window. The Ground Script Display Window should contain the following: G/S Start Time G/S Stop Time An Expand push button s/c: AM1 Mode: Operational	
12.	Close Ground Script Display Window Click ‘OK’	A confirmation dialog box appears, prompting user Do you really want to quit? The Ground Script Display window is no longer in view.	
13.	Activate Command Control window using the following tool directive from the Control window. ECL> **TOOL Command_Control**	A dialog box appears prompting user to enter String and Spacecraft Id.	

14.	enter String id (ex. 100) enter Spacecraft ID (ex. AM1) click “OK”	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS (Note: User may need to resize window if all columns are not displayed)	
15.	Start ‘sc’ Command Tool. From a terminal window enter the following: % **rlogin <hostname**> where hostname= real-time server % **cd /fosb/test/am1/scripts/setup** % **setenv SCRIPT RealTimeServer** % **source FosEnvVars** % **cd /fosb/test/am1/bin/sun_sparc_5-5** % **sc AM1 100 Ops**	The real-time host name will be displayed at prompt. The environment variables need to run the tool will be set. The tool will start sending CLCWs. CLCWs will be generated. The following messages will be displayed: ***sc waiting for messages*** CLCW before send to FOP 0	
16.	From the Command input line in the Command Control window, initialize FOP: >**FOP INIT CHECK** Click ‘Resume’ Click ‘Send’	The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: ‘String Manager successfully configured’ ‘FOP INIT with CLCW check successful	

17.	Select a ground script for execution. Using the "File" pull down menu in Command Control window select the "Open" option.	A time selector dialog box appears	
18.	Enter the DAS start time of the ground script selected for execution. > **YYYY/DDD HH:MM:SS.mmm** press the Enter key Enter the DAS stop time of the ground script selected for execution. >**YYYY/DDD HH:MM:SS.mmm** press the Enter key	The times entered will be displayed in the start and stop time text fields. The Stop and Start times entered will be updated at the bottom of the window.	
19.	Click 'OK'	A WARNING dialog box will appear with dates and times specified, prompting user to load ground script.	
20.	Click 'OK' to load the ground script	The contents of the ground script will be displayed in the text area of the window.	

21.	Verify the following items are properly displayed in the Command Control window. ground script start time ground script stop time spacecraft id associated with ground script ground script status - Suspend (default) ground script processing mode - Auto (default) current bias time verification flags (Prerequisite State Check (PSC)=ON, Command =ON, and Telemetry (TV)=ON)	The commands/directives displayed should represent the time period specified.	
22.	Turn TV off. Use Config Option pull down menu, and select Telemetry Verfication.	TV = OFF	
23.	Put ground script in confirmation mode enter MODE STEP. Click ‘Resume’. Click ‘Send’. Note: This makes for easier manipulation.	A send or cancel message will flash in the status column. The Mode displayed is changed from “Auto” to “Step”.	
24.	Click on the “Resume” button to invoke the execution of the ground script.	G/S Status is “Active”.	

25.	Use the scroll bar to view directives in ground script.	The user will be able to see executed ground script directives, current ground script directive and future ground script directives.	
26.	Suspend the execution of the current ground script.	The ground script should stop execution and the G/S Status is “Suspend”.	
27.	Disable a directive in the current ground script that has not been executed. Select the desired directive. Click the "disable" button to disable the directive.	The status column for that directive status is “disabled”.	
28.	Click on the “Resume” button.	G/S Status should be “Active”. The ground script will began executing and the disabled directive will be skipped.	
29.	Suspend the execution of the current ground script.	The ground script should stop execution and the G/S Status is “Suspend”.	
30.	Disable a directive in the current ground script that has not been executed Select the desired directive. Click the "Disable" button to disable the directive.	The status column for that directive status is “disabled”.	
31.	Enable the directive that has been disabled. Select the disabled directive. Click the "Enable" button to enable the directive.	The status column for that directive status is “enabled”.	
32.	Click on the “Resume” button.	G/S Status should be “Active”. The ground script will began executing and the disabled/enabled directive will be executed.	

33.	Suspend the execution of the current ground script.	The ground script should stop execution and the G/S Status is “Suspend”.	
34.	Transfer the execution to a directive in the ground script. Select a non-executed directive in the ground script. Click on the "Set Jump" button to jump to the specified directive.	The “Set Jump” button will place ‘Skip’ in the status column of all directives above the cursor. Once the ground script is resumed the directives will not be executed.	
35.	Deselect a set jump target in the executing ground script. Select another set of non-executed directive in the ground script. Click on the "Set Jump" button to jump to the specified directive. Click on the “Clear Jump” button. Click ‘Resume’.	The “Clear Jump” button will deselect the directives initially selected to jump. Once the ground script is resumed the directives will execute. Verify this directive executes after the current directive has been successfully executed.	
36.	Click on the “Resume” button.	G/S Status should be “Active”. The ground script will began executing and the directives with the |skip status will not be executed and the ones with the Reset|Skip| status will execute.	
37.	Suspend the execution of the current ground script.	The ground script should stop execution and the G/S Status is “Suspend”.	

38.	Place ground script in confirmation mode (step mode). Use the “Config” pull down menu Select mode step	The Mode displayed is changed from “Auto” to “Step”.	
39.	Click on the “Resume” button	G/S Status should be “Active”. The ground script will began executing and will prompt the user for confirmation of each directive.	
40.	Merge a procedure with the ground script. Suspend the execution of the current ground script. Click on the "suspend" button.	G/S Status is “Suspended”.	
41.	Enter the following from the Command input line to start the PROC: **START** <**procname**> Click the “Resume” button to resume the suspended ground script.	The status column will display ‘canceled’ for that directive. G/S Status is “Active” indicating ground script execution has resumed The procedure will expand. The procedure is complete when the last directive has a processed status.	

42.	Search the executing ground script for a specific procedure. Use the “Utility” menu option select “Find”. Select Procedure Name Enter the procedure name in the search text box. Click ‘Search’ button Click ‘Cancel’	A search dialog box is displayed Verify the entire line containing the procedure is highlighted	
43.	Search the executing ground script for a specified time stamp. Go to the “Utility” pull down menu select “Find” option. Select Time option Enter the specified time in the find dialog window YYY/DDD HH:MM:SS Click ‘Search’ button Click ‘Cancel’	A search dialog box is displayed Verify the entire line containing the specified time is highlighted	

44.	Search the executing ground script for a specified text string. Go to the “Utility” pull down menu select “Find” option. Select Text String option. Enter the specified text string in the search text box. Click ‘Search’ button. Click ‘Cancel’.	A search dialog box is displayed. Verify the entire line containing the specified text string is highlighted.	
45.	Search the executing ground script for a specified command. Go to the “Utility” pull down menu select “Find” option. Select Command option. Enter the specified command in the find dialog window. Click ‘Search’ button. Click ‘Cancel’.	A search dialog box is displayed. Verify the entire line containing the command selected is highlighted.	
46.	Print the ground script. Go to “File” option and select “Print”.	A hard copy of the ground script will be received from the printer.	
47.	Terminate the current ground script by clicking on the "kill" button.	A dialog box appears prompting user for certainty.	
48.	Click ‘OK’.	The Command Control window closes.	

Ground Script Commanding Test Procedure

Test Case No: CMD 2015B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, A Detailed Activity Schedule (DAS) with prerequisite state check, critical, submnemonic, and regular safety commands, hard copies of command pdb definitions.

Test Description:

This test is designed to verify the FOS capability to process critical commands, commands with submnemonics, and prerequisite state checks for commands that are contained as part of a ground script. Once, that ground script is executed the prerequisite state check fails, or if a submnemonic is defined out of range the user can override the command directive or cancel the command directive. The test data will consist of generating a DAS consisting of all command types listed above. The commands in the DAS will be placed in the ground schedule. The ground script will be a result of requesting the times from the ground schedule. This test also, demonstrates that for commands issued as part of a ground script, the FOS is capable of recognizing and executing valid command definitions based on the FOS PDB files.

Success Criteria:

The authorized user should be to override or cancel the command directive when prerequisite state check fails using the FUI interface options provided by the Command Control window (CCW). The submnemonic command definitions that are invalid should be rejected, based on the definition in the command PDB, however the user can override or cancel the command directive. The user should receive status of the command directive in the CCW. All commands are validated according to the FOS command PDB definitions.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto a EOC workstation, and open a terminal window.	A blank desktop area with an xterm window.	
2.	Initiate Data Server, Real-time and User Station Startup scripts. Reference Test Case #.	The EOC system is up and running.	

3.	Invoke the Event Display window by entering the following in the ECL directive line. Click the 'TOOLS' button on the Control window. Select Event Display-Global. Click 'OK'.	A list box appears. Event Display-Global appears in the selection filter box. An event display window appears.	
4.	Connect to a real-time string. From the Control window enter the following ECL directive. ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	String Manager will attempt to connect to a real-time string when this process is complete, an event message: 'Successfully connected to string 100'.	
5.	Take CAC privilege. Using the ECL command line in the Control window enter. ECL>**TAKE COMMAND STRING = 100** ECL> **TAKE GROUNDCONTROL STRING=100**	An event message via event display indicating privileges have been granted. Message should indicate userid and workstation hostname.	
6.	Activate Command Control window using the following tool directive from the Control window. ECL> **TOOL Command_Control**	A dialog box appears prompting user to enter String and Spacecraft Id.	
7.	Enter String Id (Ex. 100) Enter Spacecraft ID (Ex. AM1) Click "OK"	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS. (Note: User may need to resize window if all columns are not displayed.)	

8.	Start 'sc' Command Tool. From a terminal window enter the following: % rlogin <hostmane> where hostname= real-time server % cd /fosb/test/am1/scripts/setup % setenv SCRIPT RealTimeServer % source FosEnvVars % cd /fosb/test/am1/bin/sun_sparc_5-5 % sc AM1 100 Ops	The real-time host name will be displayed at prompt. The environment variables need to run the tool will be set. The tool will start sending CLCWs CLCWs will be generated. The following messages will be displayed ***sc waiting for messages*** CLCW before send to FOP 0	
9.	Select the desired ground script to execute the times will be based on the DAS generated. View the integrated report file associated with the selected DAS.		
10.	open a terminal window %**cd /fos/test/am1/ reports/integrated** %**ls -ltr** %**ls**	A xterm window pops up. Displays a list of files in that directory with time order reverse.	
11.	To view the ASCII file Integrated Report enter % **more "filename"**	The contents of the file are displayed. Note, the start and stop times of the DAS.	

12.	Select ‘Open’ from the ‘File’ menu. Enter the start time of the ground script selected for display. **>YYYY/DDD HH:MM:SS.mmm** Press the Enter key. Enter the stop time of the ground script selected for display. >**YYYY/DDD HH:MM:SS.mmm** Press the Enter key. Click ‘OK’.	A time selector window appears The times entered will be displayed in the start and stop time text fields The Stop and Start times entered will be updated at the bottom of the window. A confirmation box will appear with dates and times specified, prompting user to load ground script The ground script selected is displayed in the Command Control window (CCW).	
13.	Verify the following items are properly displayed in the Command Control window. ground script start time ground script stop time spacecraft id associated with ground script ground script status - suspended (default) ground script processing mode - auto (default) current bias time verification flags (Prerequisite State Check (PSC)=ON, Command =ON, and Telemetry (TV)=ON)	The commands/directives displayed should represent the time period specified.	
14.	Click on the “Resume” button to invoke the execution of the ground script.	G/S Status is “Active”.	

15.	Monitor the ground script to ensure all commands are successfully transmitted.	The status column will display a status for each completed directive. Event messages will displayed indicating successful transmission of each command	

16.	Adhere to the messages in the ground script Cancel the directive Allow critical command Override PSC Cancel PSC Override Submnemonic subfield error Cancel Submnemonic subfield error Cancel the critical command	The status column will display ‘canceled’ for that directive. The critical command will be transmitted to EDOS, and an event message is generated. The status column in the CCW will display ‘processed’ for that command. The PSC command will be transmitted to EDOS, and an event message is generated. The status column in the CCW will display ‘processed’ for that command The PSC command will be canceled. The status column in the CCW will display ‘canceled’ for that command The command with the out of range submnemonic will be transmitted to EDOS, and an event message is generated. The status column will display ‘processed’ for that command The command with the out of range submnemonic will be canceled. The status column will display ‘canceled’ for that command The critical command will be canceled. The status column will display ‘canceled’ for that command	

Manual Commanding Test Procedure

Test Case No: 2030B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, DMS, RMS, CMS, CMD, FUI and sc (CLCW generator)

Test Case Description:

This test is designed to verify the FOS has the capability to support the processing of command directives that are entered manually via the command input line in the Command Control window (CCW) at a CAC user workstation during real-time. This test demonstrates that FOS is capable of recognizing regular safety commands, commands with valid and invalid submnemonics, hazardous, critical, commands, and prerequisite state check commands. A display page (entitled 'prereq') with PSC commands has been created to monitor the telemetry mnemonics associated with prerequisite state check commands.

Success Criteria:

The authorized user should be able to override or cancel a command directive when prerequisite state check fails. The user should be able to verify failed or passed status for all PSC commands by viewing the 'prereq' display page. Any manually entered submnemonic command definitions that are invalid should be rejected, based on the definition in the command PDB, however, the user can cancel or override the subfield error. The user should be able to allow or cancel critical commands, however hazardous commands will not be transmitted.

Step Id	Action	Expected Result/Output	Pass/Fail
1.	Log onto a EOC workstation, and open a terminal window.	A blank desktop area with an xterm window.	
2.	Initiate Data Server, Real-time and User Station Startup scripts. Reference Test Case #	The EOC system is up and running.	

3.	Invoke the Event Display window by clicking the 'TOOLS' button on the Control window. Select Event Display-Global. Click 'OK'.	A list box appears. Event Display-Global appears in the selection filter box. An event display window appears.	
4.	Connect to a real-time string. From the Control window enter the following ECL directive: ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	String Manager will attempt to connect to a real-time string when this process is complete, an event message: 'Successfully connected to string 100'.	
5.	Take CAC privilege. Using the ECL command line in the Control window enter: ECL>**TAKE COMMAND STRING = 100** ECL> **TAKE GROUNCONTROL STRING=100**	An event message via event display indicating privileges have been granted. Message should indicate userid and workstation hostname.	
6.	Invoke the Command Control window. Click the 'Tools' button on the Control window. Select Command_Control from the Tool Selection Dialog Box. Click 'OK'.	Tools selection dialog box appears; Command_Control is displayed in the 'selection' text box. Command Control window is displayed. A small dialog box with the title "CCW/CMW" appears on top of Command Control window prompting user to enter String and Spacecraft Id.	

7.	Enter String id (ex. 100). Enter Spacecraft ID (ex. AM1). Click “OK”.	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS. (Note: User may need to resize window if all columns are not displayed.)	
8.	Start ‘sc’ Command Tool. From a terminal window enter the following: % rlogin <hostname> where hostname= real-time server % cd /fosb/test/am1/scripts/setup % setenv SCRIPT RealTimeServer % source FosEnvVars % cd /fosb/test/am1/bin/sun_sparc_5-5 % sc AM1 100 Ops	The real-time host name will be displayed at prompt. The environment variables need to run the tool will be set. The tool will start sending CLCWs. CLCWs will be generated. The following messages will be displayed. ***sc waiting for messages*** CLCW before send to FOP 0	

9.	From the Command input line in the Command Control window, enter the following directive to initialize FOP, and start AD service with CLCW check >**FOP INIT CHECK** Click 'Resume' Click 'Send'	The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: 'String Manager successfully configured' 'FOP INIT with CLCW check successful' FOP will accept whatever CLCW frame sequence number.	
10.	Enter a regular safety (AD) command Using the Command input line from the Command Control window enter /**AST_TURN_ON_C_VDP1** Click 'Resume' Click 'Send'	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	

11.	From the Command input line enter a command mnemonic with a valid submnemonic parameter value. **/TCS_SET_PBATPWMA DUTYCYCLE=135 HTRGROUP=6** Click 'Resume' Click 'Send'	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. Notice the following event messages View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
12.	Enter a command mnemonic with an out range subfield value. **/TCS_SET_PBATPWMA DUTYCYCLE=257 HTRGROUP=0**	A dialog box appears indicating invalid parameter for DUTYCYCLE	

13.	Enter a command mnemonic with valid submnemonic parameter values. **/TCS_SET_PBATPWMA HTRGROUP=6** **DUTYCYCLE=205** Click “Resume” button. Click the “Send” button.	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
14.	Enter a valid command mnemonic with a syntactically incorrect submnemonic parameter. **/TCS_SET_PBATPWMA HTRGROUP*8**	A dialog box appears indicating invalid parameter.	

15.	Enter a command mnemonic with a valid submnemonic parameter value. **/MOD_TEST_FR_PVGAIN GN= 248** Click “Resume” button Click the “Send” button.	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
16.	Enter a command mnemonic with a valid submnemonic parameter value. **/MOD_TEST_FR_PVOFFSET OS= 0** Click “Resume” button Click the “Send” button.	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	

17.	Enter a command mnemonic with an out of range subfield value. **/MOD_TEST_FR_PVOFFSET OS= 256**	A dialog box appears invalid parameter	
18.	Enter a command mnemonic without assigning the parameter values. (note: system will assign the default value). ECL> **/TCS_SET_PBATPWMB** Click “Resume” button Click the “Send” button.	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS. Note: Verify via bit busting the command was accepted and default value was assigned	
19.	Enter a invalid command mnemonic with an valid submnemonic. **/MOD_STEP_SR_GRR_BSS SCANS=1** .	A dialog box appears indicating invalid parameter.	

20.	Enter a command with valid subnmenonic values **/MOD_STEP_SR_GR_BSS SCANS=1 STEPS =63 DIRECTION=1** Click “Resume” button Click the “Send” button	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS. Note: Verify via bit busting the command was accepted and default value was assigned	

21.	Enter a command submnemonic specifying only one of the subfield value. Click the “Resume” button. Click the “Send” button. **/ MOD_STEP_SR_GR_BSS SCANS=1**	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS. Note: Verify via bit busting the command was accepted and default value was assigned for the mnemonics not specified.	

22.	Enter three (3)critical commands. **/COM_ENABLE_SBT1_AON** **/COM_ENABLE_SBT2_AON** **/MOP_TURN_OFF_SIDE_A** Click the “Resume” button. Click the “Send” button. Click “allow” button for each command.	A send/cancel message will flash in the status column of the Command Control window. Event message indicating command is critical. An allow/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS. Note: Verify via bit busting the command was accepted and default value was assigned.	
23.	Enter three (3)critical commands. **/TCS_DISABLE_TANK_H1B** **/MOP_SET_RD_SPARE** **/MOP_TURN_OFF_SIDE_B** Click the “Resume” button. Click the “Send” button. Click the “cancel” button for each command	A send/cancel message will flash in the status column of the Command Control window An allow/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been cancelled. View the event messages generated from the command indicating commands were cancelled	

24.	Enter a hazardous command: **/EAS_ENABLE_NEA_BUSB** Click the “Resume” button. Click the “Send” button.	An allow/cancel message will flash in the status column of the Command Control window. View the event message indicating command was hazardous. Command should not be transmitted.	
25.	Enter a hazardous command: **/EAS_ENABLE_NEA_BUSA** Click the “Resume” button. Click the “Send” button.	An allow/cancel message will flash in the status column of the Command Control window. View the event message indicating command was hazardous. Command should not be transmitted.	

26.	Send a prerequisite state check command with static telemetry values. **/AST_TURN_OFF_C_SDP** Click the “Resume” button. Click the “Send” button. Click ‘override’ Repeat above steps and cancel the command	A send/cancel message will flash in the status column of the Command Control window. A PSC Fail -override/cancel message will flash in status column of the CCW. The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS. A cancelled message will appear in status column of Control window	

27.	Invoke the EDOS telemetry driver to generate telemetry packets to monitor prerequisite state check commands. In a terminal window, enter the following: %: **cd /fosb/test/am1/scripts/setup** %**: setenv SCRIPT UserStation** %: **source FosEnvVars** %: **cd /fosb/test/am1/bin/sun_sparc_5-5** %: **FtPgPackGen** From the Control window enter the following ECL directives: **PG CONFIG HOST=225.2.7.00 PORT=20101 APID=1** **PG STARTDATA APID=1 COUNT=-1**	Wait for message -- Packet Generator is ready to receive directives The telemetry driver starts sending packets.	
28.	Bring up the 'prereq' display page. Click the 'Tlm Wins…' button the Control window. Select 'prereq'. Click 'ok'.	A display page list boxes appears. 'Prereq' appears in the selected text field. The prereq page is displayed.	

29.	Enter a Prerequisite State Check command with one valid telemetry parameter value. **/AST_TURN_OFF_C_SDP** Click the “Send” button. check ‘AST_BR_C_S_PROCESS’ on the prereq telemetry page. If the value is ‘ON’ PSC check passes. If value is “OFF” a message in the status column should appear indicating PSC failure; override or cancel Click the ‘cancel’ button	A send/cancel message will flash in the status column of the Command Control window. If PSC check passes the command will be transmitted. The message in the status column indicates the command has been processed. View the event messages generated from the command subsystem. If PSC fails an override/cancel message will flash in status column of the CCW. The command is not transmitted. The message in the status column indicates the command directive was canceled	

30.	Enter a Prerequisite State Check command with one valid telemetry parameter value. **/CDH_ENABLE_CT1_OK** Click the “Send” button. check ‘CDH_BR_ACT_IMOKDIST’ on the prereq telemetry page. If the value is ‘DISABLE’ PSC passes. If value is “ENABLE” a message in the status column should appear indicating PSC failure; override or cancel Click the ‘Override’ button	A send/cancel message will flash in the status column of the Command Control window. If PSC check passes the command will be transmitted. The message in the status column indicates the command has been processed. View the event messages generated from the command subsystem. If PSC fails an override/cancel message will flash in status column of the CCW. The command is transmitted. The message in the status column indicates the command directive was processed. View the event messages generated from the command indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	

31.	Enter a Prerequisite State Check command with one valid telemetry parameter value. **/EPS_TURN_OFF_ADEA** Click the “Send” button. check ‘EPS_BR_ADE_A_ON' on the prereq telemetry page. If the value is ‘ON’ PSC passes Verify the command was sent. If value is “OFF” a message in the status column should appear indicating PSC failure; override or cancel Click the ‘Cancel’ button	A send/cancel message will flash in the status column of the Command Control window. If PSC check passes the command will be transmitted. The message in the status column indicates the command has been processed. View the event messages generated from the command subsystem. If PSC fails an override/cancel message will flash in status column of the CCW. The command is transmitted. The message in the status column indicates the command directive was processed. View the event messages generated from the command.	
32.	Enter a Prerequisite State Check command with one valid telemetry parameter value. **/EPS_SELECT_ADEA_FWD** Click the “Send” button. check ‘EPS_BR_ADE_ACTSADIR on the prereq telemetry page. If the value is ‘REVERSE’ PSC passes Verify the command was sent. If value is “FORWARD” a message in the status column should appear indicating PSC failure; override or cancel Click the ‘Override’ button	A send/cancel message will flash in the status column of the Command Control window. If PSC check passes the command will be transmitted. The message in the status column indicates the command has been processed. View the event messages generated from the command subsystem. If PSC fails an override/cancel message will flash in status column of the CCW. The command is transmitted. The message in the status column indicates the command directive was processed. View the event messages generated from the command.	

33.	Enter a Prerequisite State Check command with four valid telemetry parameters values: **/AST_TURN_ON_C_SDP** Click the “Send” button. Check the following telemetry mnemonics on the prereq telemetry page. Click ‘Override’.	All of the values below must be displayed for the PSC to pass and the command transmitted. AST_BR_C_S_PROCESS = OFF CDH_BR_ACT_IMOKDIST = DISABLE CDH_CR_ACT_OSC_SEL = MO_B EPS_BR_ADE_A_ON = OFF The message in the status column indicates the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS. Otherwise, a message in the status column should appear indicating PSC failure; override or cancel.	
34.	End of test.		

Uplink Loads

Test Case No: 2050B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, a generated DAS containing uplink commands for a variety of loads: ATC, RTS, Table, Instrument and FSW loads.

Test Case Description:

This test demonstrate the capability of FOS to uplink a variety of loads manually and via ground script; assume all loads are generated and are ready for uplink. Secondly FOS shall provide the capability to view via telemetry the successful dispatch of absolute time stored commands and relative time stored commands.

Success Criteria:

The success of this test requires the demonstration that the FOS provides the user with a capability to uplink a variety of loads such as: RTS Load, Table Load, instrument and FSW load manually or via ground script. Demonstrate that the EOC is capable to verify via telemetry the successful dispatch of absolute time stored commands and relative time stored commands.

Note:

- Parameters inside the <> will be provided at run time.
- When necessary in this test, a displayed window may be resized and/or relocated in order to see view data as related to a specific step.
- Assume all loads (ATC load, RTS load, flight software load, table load, and instrument microprocessor load) are successfully generated and are ready for uplink.

Step Id	Action	Remark/Expected Result/Output	Pass/Fail
1.	Log onto a EOC workstation, and open a terminal window. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4)	Username: **fostest2** Password: ***********	

2.	From a new terminal window: Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
3.	From a new terminal window: Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	
4.	From a new terminal window: Logs onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
5.	Clicks on "Tools" button.	The Tool Selection Dialog Box will appear on the screen.	
6.	Selects **Events Display-Global** from the Tool Selection Dialog Box.	The Event Display window will appear on the screen.	
7.	At an user station, connects to a real-time operational string. From the Control window enters the following ECL directive ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	Verify the following messages appear in the Event Display window: "Successfully connected to string 100".	

8.	Take CAC privilege. Using the ECL command line in the Control window enters ECL>**TAKE COMMAND STRING = 100** ECL> **TAKE GROUNDCONTROL STRING=100**	An event message via event display indicating privileges have been granted. Message should indicate userid and workstation hostname. (Note: EOC operator now has the authorization to issue individual commands in real time. For more information regarding Command authorization please refer to test case CMD-2000B)	
9.	Activates Command Control window using the following tool directive from the Control window. ECL> **TOOL Command_Control**	Command Control window is displayed. A small dialog box with the title "CCW/CMW" appears on top of Command Control window prompting user to enter String and Spacecraft Id.	
10.	Enters String id (ex. 100) Enters Spacecraft ID (ex. AM1) Clicks "OK" on "CCW/CMW" dialog box.	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS	

11.	Start ‘sc’ Command Tool. From a terminal window enter the following: % rlogin <hostname> where hostname= real-time server % cd /fosb/test/am1/scripts/setup % setenv SCRIPT RealTimeServer % source FosEnvVars % cd /fosb/test/am1/bin/sun_sparc_5-5 % sc AM1 100 Ops	The real-time host name will be displayed at prompt. The environment variables need to run the tool will be set. The tool will start sending CLCWs CLCWs will be generated. The following messages will be displayed ***sc waiting for messages*** CLCW before send to FOP 0	
12.	From the Command input line in the Command Control window, enter the following directive to initialize FOP, and start AD service with CLCW check >**FOP INIT CHECK** Click ‘Resume’ Click ‘Send’	The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: ‘String Manager successfully configured’ ‘FOP INIT with CLCW check successful’ FOP will accept whatever CLCW frame sequence number.	
13.	Assume RTS load is generated. If not refer to RTS load generation test case (CMS-2170B) to generate RTS load prior to uplink.	Note: Load contains critical commands	

14.	Change to the rts loads directory %: **cd /fosb/test/am1/loads/rts** %: cp <filename>.upl .. %: cd .. % ls ltr	An image load (.img), a contents (.cnt) file and uplink load (.upl) are created. The uplink image file will be copied into the loads directory The file just copied will be listed in the current directory.	
15.	Verify Load Catalog entry: a. %: isql -Ufos_dba b. password ***** c. 1>use am1_fos_ops d. 2>go e. 1>select * from fos_load_cat f. 2>go g. 1> exit	The updated load catalog is stored/maintained within the DMS database. The load catalog fields include the load name, load_size, the uplink time, valid start time, valid stop time, and the spacecraft subsystem (sc_id).	
16.	View load data: a. Enter the following to change directory to reports %: **cd /fosb/test/am1/reports** b. ls *.rpt	A list of files in the specified directory will appear. There will be a file <RTS load name>.rpt associated with the load that was generated.	
17.	View report: % more <filename.rpt>	The contents of the report are displayed. Verify uplink window is still valid.	

18.	Invoke the EDOS telemetry driver to generate telemetry packets to monitor prerequisite state check commands. (Optional, only needed if user wants TV of load.) In a terminal window, enter the following: %: **cd /fosb/test/am1/scripts/setup** %**: setenv SCRIPT UserStation** %: **source FosEnvVars** %: **cd /fosb/test/am1/bin/sun_sparc_5-5** %: **FtPgPackGen** From the Control window enter the following ECL directives: **PG CONFIG HOST=225.2.7.00 PORT=20101 APID=1** **PG STARTDATA APID=1 COUNT=-1**	Wait for message -- Packet Generator is ready to receive directives Note: CEV mnemonic represents telemetry parameter whose value verifies the receipt and execution of the command. CEV low value and high value must be equal). The telemetry driver starts sending packets.	
19.	From Command Control window, enter the load uplink directive for a RTS load. **ECL>LOAD <loadId> <partitionIndicator> <partitionAmount>** Click ‘Resume’ Click ‘Send’	A send/cancel message will flash in the status column of the Command Control window. Verify through event display the load is transmitted	

20.	Assume instrument microprocessor load is generated. If not refer to instrument microprocessor load generation test case (CMS-2060B) to generate Table load prior to uplink.		
21.	Enter the following to change directory to loads/mp: %: **cd /fosb/test/am1/loads/mp** %: **ls** %: **cp <filename>.upl ..** %: **cd ..** % **ls -ltr**	An image load (.img), a contents (.cnt) file and uplink load (.upl) are created. The uplink image file will be copied into the loads directory The file just copied will be listed in the current directory.	
22.	Repeat Verify load catalog entry steps.		
23.	Repeat View load data steps for a Microprocessor load.		
24.	From Command Control window, enter the load uplink directive for a microprocessor load. **ECL>LOAD <loadId> <partitionIndicator> <partitionAmount>** Click 'Resume' Click 'Send'	A send/cancel message will flash in the status column of the Command Control window. Verify through event display the load is transmitted.	
25.	Assume flight software load is generated. If not refer to flight software load generation test case (CMS-2060B) to generate flight software load prior to uplink.		

26.	Enter the following to change directory to loads/fsw: %: **cd /fosb/test/am1/loads/fsw** %: cp <filename>.upl .. %: cd .. % ls -ltr	An image load (.img), a contents (.cnt) file and uplink load (.upl) are created. The uplink image file will be copied into the loads directory The file just copied will be listed in the current directory.	
27.	Repeat Verify load catalog entry steps for flight software load.		
28.	Repeat View load data steps for flight software load.		
29.	From Command Control window, enter the load uplink directive for a flight software load. **ECL>LOAD <loadId> <partititionIndicator> <partitionAmount>** Click 'Resume' Click 'Send'	A send/cancel message will flash in the status column of the Command Control window. Verify through event display the load is transmitted.	
30.	Assume table load is generated. If not refer to Table load generation test case (CMS-2040B) to generate table load prior to uplink.		

31.	Enter the following to change directory to loads/mp: %: **cd /fosb/test/am1/loads/table** %: cp <filename>.upl .. %: cd ../loads % ls ltr	An image load (.img), a contents (.cnt) file and uplink load (.upl) are created. The uplink image file will be copied into the loads directory The file just copied will be listed in the current directory.	
32.	Repeat Verify load catalog entry steps for table load.		
33.	Repeat View load data steps for table load.		
34.	From Command Control window, enter the load uplink directive for a table load. **ECL>LOAD <loadId> <partitionIndicator> <partitionAmount>** Click 'Resume' Click 'Send'	A send/cancel message will flash in the status column of the Command Control window. Verify through event display the load is transmitted.	
35.	From User Station (optional): a. Enter the following to change directory to setup %: **cd /fosb/test/am1/scripts/setup** b. run MyKill.	All processes has been brought up before will be killed.	
36.	Log off User Station.		
37.	End of test.		

Command Modes - Transmission & Uplink Test Procedure

Test Case No: 2070B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, DMS, RMS, CMS, CMD, FUI , sc, and FOP_INIT test proc

Test Case Description:

This test will verify the following functions of the Command modes - transmission & Uplink:

a. Select Rate.

b. Transmit Commands to the EOS spacecraft.

c. Utilize a single virtual channel for uplink.

d. Select CTIU.

Also this test will provide the automatic retransmission of CLTU's once it has been determined that commands have been lost.

Success Criteria:

The success of this test requires the demonstration that the FOS provides the user with a capability to select rate from a set of valid rate, to select either of the two CTIUs as the active CTIU, and to transmit commands to the EOS spacecraft. Demonstrate the capability of retransmission since the commands have been lost during the transmission and uplink.

Step Id	Action	Remark/Expected Result/Output	Pass/ Fail

Note:

- Parameters inside the <> will be provided at run time.
- When necessary in this test, a displayed window may be resized and/or relocated in order to see view data as related to a specific step.

1.	Log onto a EOC workstation, and open a terminal window. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):	Username: **fostest2** Password: ***********	
2.	From a new terminal window: Starts the Data Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Data Server processes are running.	
3.	From a new terminal window: Starts the Real-Time Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Real-Time Server processes are running.	
4.	From a new terminal window: Logs onto an FOT User Station. Starts the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
5.	Click on "Tools" button from the Control window.	The Tool Selection Dialog Box will appear on the screen.	
6.	Select **Event Display--Global** from the Tools Selection Dialog Box.	The Event Display window will appear on the screen.	
7.	At an user station, connect to a real-time operational string. From the Control window enters the following ECL directive ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	Verify the following messages appear in the Event Display window: "Successfully connected to string 100".	

8.	Take CAC privilege. Using the ECL command line in the Control window enter: ECL>**TAKE COMMAND STRING = 100** ECL>**TAKE GROUNDCONTROL STRING = 100**	An event message via event display indicating privileges have been granted. Message should indicate userid and workstation hostname. (Note: EOC operator now has the authorization to issue individual commands in real time. For more information regarding Command authorization please refer to test case CMD-2000B)	
9.	Activate Command Control window using the following tool directive from the Control window. ECL> **TOOL Command_Control**	Command Control window is displayed. A small dialog box with the title "CCW/CMW" appears on top of Command Control window prompting user to enter String and Spacecraft Id.	
10.	Enter String id (ex. 100) Enter Spacecraft ID (ex. AM1) Click "OK" on "CCW/CMW" dialog box.	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS	
11.	Make sure TV and CV are off if packet generator is not running. Use Config option pull down menu	TV =Off and CV=Off	
12.	Click on "TlmWins" button from the Control window.		
13.	Click on "CMD_GRD_CFG" from the TlmWins display page.	The Command Ground Parameter Display window is displayed.	

14.	Start ‘sc’ simulator. From a terminal window enter the following: % rlogin <hostname> where hostname= real-time server % cd /fosb/test/am1/scripts/setup % setenv SCRIPT RealTimeServer % source FosEnvVars % cd /fosb/test/am1/bin/sun_sparc5-5 % sc AM1 100 Ops	The real-time host name will be displayed at prompt. The environment variables need to run the tool will be set. CLCWs will be generated. The following messages will be displayed ***sc waiting for messages*** CLCW before send to FOP 0	
15.	From the Command input line in the Command Control window, initialize FOP ECL>FOP INIT CHECK Click ‘Resume’ Click ‘Send’	The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: ‘String Manager successfully configured’ ‘FOP INIT with CLCW check successful	

16.	From the Command Control window enter the following ECL directive ECL> **FOP VS=1** Click 'Resume' Click 'Send'	The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: 'String Manager successfully configured' 'Ground sequence number is set to 1' The ground sequence number is set to 1 and is shown on the Commanding Ground Parameter Display.	
17.	From the Control window enters the following ECL directive ECL> **CMDCFG PLOP=1**	Event messages is generated Protocal Info: PLOP1 selected CTIU-1 is the primary default CTIU	
18.	<u>Issues individual commands in real time:</u> From the Command input line enters a command directive. Cmd:> **/AST_TURN_ON_C_TDP** Click the "Resume" button Click the "Send" button	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. The command is successfully transmitted to EDOS.	
19.	Analyze command data block report: %: **cd /fosb/test/am1/reports** %: **ls -ltr**	A logging file for the command data block (CDB.log) is generated with current date and time stamp in directory: /net/beeper/fosb/dev/am1/reports.	

20.	Running Unix tools named od to dump the file in hex format, and generate a report name cdb.dat. %: **od -x CDB.log >output file**	CDB.dat file is generated.	
21.	Print CDB.dat	CDB.dat is output to the printer. Verify in the CDB.dat file contains information regarding information about spacecraft identification for each CTIU. Its value in hexadecimal should be "a9" for CTIU1. (Note: Refer to ICD-106 to locate the field for CTIU) (F-CMD-14310, F-CMD-14315)	
22.	Observe CDB.dat file and record the value of Frame Sequence Number: _____	(Note: Refer to ICD-106 to locate the field for frame sequence number)	

23.	From the Control window enter the following ECL directive to reconfigure to the backup CTIU. **NOTE: FOP must be in initial state** ECL> **START FOP_REINIT** Click 'Resume' Click 'Send' ECL> **CMDCFG PLOP=2 CLTUQTY=3** Click 'Resume' Click 'Send' ECL> **START FOP_REINIT** Click 'Resume' Click 'Send' <u>Set Timer</u>: ECL> **FOP TIMER=30** Click 'Resume' Click 'Send' ECL> **CMDCFG PRIMARY=CTIU-2** Click 'Resume' Click 'Send' ECL> **FOP INIT CHECK** Click 'Resume' Click 'Send'	View event display to verify message indicating: CTIU-1 is primary and Plop 2 selected and CLTUqty: 3 The FOP_REINIT procedure will expand. The FOP Timer will be set to 1, FOP Transmit will be set for 1 and a no op command will be sent. Protocol : Fop, Protocol alert LIMIT CV will fail and Error will flash in the status column where no op command was entered. FOP is not in initial state. Changed to CTIU to backup The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: 'String Manager successfully configured' 'FOP INIT with CLCW check successful' FOP will accept whatever CLCW frame sequence number.	

24.	Enter the load uplink directive for a RTS load: **ECL>LOAD<loadId><partitition Indicator> <partitionAmount>** Click 'Resume' Click 'Send'	Verify that the load has been uplinked and executed via the event display.	
25.	Repeat steps to collect CDB.log files Analyze command data block report steps.	Verify in the CDB.dat file contains information regarding information about spacecraft identification for each CTIU. Its value in hexadecimal should be "aa" for CTIU2. (Note: Refer to ICD-106 to locate the field for CTIU.)	
26.	Observe CDB.dat file and bit busting the data.	Verify in the CDB.dat file contains information regarding information about virtual channel identification. Its value should be "00" in hexadecimal. (Note: Refer to ICD-106 to locate the field for virtual channel id)	
27.	Repeat Analyze command data block report steps.	Verify in the CDB.dat file, the frame sequence number increments sequentially.	

28.	Reinitialize FOP (from Command Control window) ECL> **CMDCFG PLOP=1** Click 'Send' Click 'Resume' ECL> **START FOP_REINIT** Click 'Send' Click 'Resume' Set Timer: ECL> **FOP TIMER=30** Click 'Send' Click 'Resume'	Event messages is generated Protocal Info: PLOP1 selected The FOP_REINIT procedure will expand. The FOP Timer will be set to 1, FOP Transmit will be set for 1 and a no op command will be sent. Fop, Protocol alert LIMIT CV will fail and Error will flash in the status column where no op command was entered FOP will return to initial state	

29.	From the Control window enters the following ECL directive ECL> **CMDCFG PRIMARY=CTIU-1** Click 'Send' Click 'Resume' ECL> **FOP INIT CHECK** Click 'Send' Click 'Resume'	CTIU changed to primary The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: 'String Manager successfully configured' 'FOP INIT with CLCW check successful' FOP will accept whatever CLCW frame sequence number.	
30.	<u>Issues spacecraft command from Command Control window:</u> Cmd**:> /CDH_ENABLE_CT2_OK** Click the "Send" button.	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. View the event messages generated from the command subsystem.	
31.	Repeat Analyze command data block report steps.	Verify in the CDB.dat file, the frame sequence number increments sequentially.	

32.	Issues individual commands in real time from Command Control window and change configure to I Channel: ECL> **CMDCFG CLCW=I** Cmd:>**/AST_TURN_OFF_C_TDP** Click 'Resume' Click 'Send'	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. Notice the following event message. • The command has been successfully validated. The command has been successfully transmitted to EDOS.	
33.	Repeat Analyze command data block report steps.	Verify in the CDB.dat file, the first byte of EDOS Ground Message Header changes from 83 to 03 in hex (which means 3 in decimal, Operational Message Type). Note: Refer to Table 5.5.2-2 of the document # 510-ICD-EDOS/EGS for Message Type Field Values in the EDOS Ground Message Header for a CDB.	
34.	Issues individual commands in real time from Command Control window and change configure to back to the Q Channel: ECL> **CMDCFG CLCW=Q** Cmd:>**/AST_TURN_OFF_C_VDP2** Click 'Resume' Click 'Send'	A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates the command has been processed. Notice the following event message • The command has been successfully validated The command has been successfully transmitted to EDOS.	

35.	Uplinks commands at a rate of 125 bits per second (bps) when the control center is configured for transmission utilizing SN SSA service and the AM1 Omni antenna. ECL> **CMDCFG RATE 125** ECL> **/AST_TURN_ON_C_VDP1** Click 'Resume' Click 'Send'	Verify that rate you selected (125) is shown on the Commanding Ground Parameter Display.	
36.	Uplinks commands at a rate of 1 kilobits per second (kbps) when the control center is configured for transmission utilizing SN SMA service and the AM1 High Gain antenna. ECL> **CMDCFG RATE 1000** ECL> **/AST_TURN_OFF_C_VDP1** Click 'Resume' Click 'Send'	Verify that rate you selected (1000) is shown on the Commanding Ground Parameter Display.	

37.	Uplinks commands at a rate of 2 kilobits per second (kbps) when the control center is configured for transmission utilizing GN service and the AM1 Omni antenna. ECL> **CMDCFG RATE 2000** ECL> **/AST_TURN_ON_C_VDP2** Click 'Resume' Click 'Send'	Verify that rate you selected (2000) is shown on the Commanding Ground Parameter Display.	
38.	Uplinks commands at a rate of 10 kilobits per second (kbps) when the control center is configured for transmission utilizing SN SSA service and the AM1 High Gain antenna. ECL> **CMDCFG RATE 10000** ECL> **/AST_TURN_OFF_C_VDP2** Click 'Resume' Click 'Send'	Verify that rate you selected (10000) is shown on the Commanding Ground Parameter Display.	
39.	Kill s/c simulator.	CLCWs are no longer being transmitted.	
40.	Set Timer: (from Command Control window) ECL> **FOP TIMER=5** Click 'Send' Click 'Resume'	The fop timeout (in seconds) you selected is shown on the Commanding Ground Parameter Display.	

41.	From the command Control window enters the following ECL directive ECL> **FOP TRANSMIT=5** Click 'Send' Click 'Resume' ECL> **/AST_TURN_ON_C_VDP1** Click 'Send' Click 'Resume'	Verify via event display messages generated indicating retransmission set to <n-1> n= to the number enter for FOP Transmit. The FOP transmission limit is updated and is shown on the Commanding Ground Parameter Display. Verify that EOC provides automatic retransmission since it has been determined that command has been lost. Fop, Protocol alert LIMIT event message is generated.	
42.	Repeat the above steps changing FOP TRANSMIT to 4, 3, 2.	See above expected results.	
43.	Set retransmission to off, from the Control window enter the following ECL directive ECL> **FOP TRANSMIT=1** Click 'Send' Click 'Resume' ECL> **/AST_TURN_ON_C_VDP1** Click 'Send' Click 'Resume'	The FOP transmission limit is set to 1 and is shown on the Commanding Ground Parameter Display. Verify that the command retransmission is disabled. EOC will be determined that command has been lost Fop, Protocol alert LIMIT event message is generated	

44.	From User Station: a. Enter the following to change directory to setup %: cd /fosb/test/am1/scripts/setup b. run MyKill.	All processes has been brought up before will be killed.	
45.	Log off User Station.		
46.	End of test.		

Telemetry Verification And Command Receipt Verification

Test Case No: 2080B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, DMS, RMS, CMS, CMD, FUI , sc

Test Case Description:

This test is designed to verify the FOS capability to support the verification of commands. Commands are verified in two ways: Command Receipt Verification and Telemetry Verification. Command Receipt Verification verifies that uplinked commands were received intact on board the spacecraft. Telemetry verification verifies that the commands were successfully executed. This is accomplished by checking real time telemetry after allowing sufficient time for the command to execute, and the telemetry to downlink. (The pre-determined time is defined from command database, and is based upon onboard execution time)

Success Criteria:

The success of this test requires the demonstration that the FOS provides the user with a capability to verify the successful receipt of real time commands by the spacecraft, provides the user with the status of each command uplinked as success or fail, the demonstration that the FOS will provide the user with a capability to provide the user the spacecraft and instrument command telemetry verification status.

Note:

- Parameters inside the <> will be provided at run time.
- When necessary in this test, a displayed window may be resized and/or relocated in order to see view data as related to a specific step.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto a EOC workstation, and open a terminal window. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):	Username: **fostest2** Password:*******	

2.	From a new terminal window: Starts the Data Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Data Server processes are running.	
3.	From a new terminal window: Starts the Real-Time Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Real-Time Server processes are running.	
4.	From a new terminal window: Logs onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
5.	Click on "Tools" button.	The Tool Selection Dialog Box will appear on the screen.	
6.	Select **Events Display-Global** from the Tool Selection Dialog Box.	The Event Display window will appear on the screen.	
7.	At an user station, connects to a real-time operational string. From the Control window enters the following ECL directive ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR**	Verify the following messages appear in the Event Display window: "Successfully connected to string 100".	
8.	Take CAC privilege. Using the ECL command line in the Control window enter ECL>**TAKE COMMAND STRING = 100**	An event message via event display indicating privileges have been granted. Message should indicate userid and workstation hostname.	

9.	Activate Command Control window using the following tool directive from the Control window. ECL> **TOOL Command_Control**	Command Control window is displayed. A small dialog box with the title "CCW/CMW" appears on top of Command Control window prompting user to enter String and Spacecraft Id.	
10.	Enter String id (ex. 100). Enter Spacecraft ID (ex. AM1). Clicks "OK" on "CCW/CMW" dialog box.	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS (Note: User may need to resize window if all columns are not displayed.)	
11.	Start 'sc' Command Tool. From a terminal window enter the following: % rlogin <hostname> where hostname= real-time server % cd /fosb/test/am1/scripts/setup % setenv SCRIPT RealTimeServer % source FosEnvVars % cd /fosb/test/am1/bin/sun_sparc_5-5 % sc AM1 100 Ops	The real-time host name will be displayed at prompt. The environment variables need to run the tool will be set. The tool will start sending CLCWs CLCWs will be generated. The following messages will be displayed ***sc waiting for messages*** CLCW before send to FOP 0	

12.	Configure CLCW channel from Command Control window: ECL> **TAKE GROUNDCONTROL STRING=100** ECL> **CMDCFG CLCW=I** Click ‘Resume’. Click ‘Send’.	Set CLCW channel to I channel.	
13.	Start AD service with CLCW check: ECL> **FOP INIT CHECK** click ‘Resume’ click ‘Send’	The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window The following event messages will be generated: ‘String Manager successfully configured’ ‘FOP INIT with CLCW check successful’ FOP will accept whatever CLCW frame sequence number. Note: If CLCW is not received before the select timer expired, initialization will be considered unsuccessful.	

14.	Invoke the EDOS telemetry driver to generate telemetry packets to monitor prerequisite state check commands. In a terminal window, enter the following: %: **cd /fosb/test/am1/scripts/setup** %**: setenv SCRIPT UserStation** %: **source FosEnvVars** %: **cd /fosb/test/am1/bin/sun_sparc_5-5** %: **FtPgPackGen** From the Control window enter the following ECL directives: **PG CONFIG HOST=225.2.7.00 PORT=20101 APID=1** **PG STARTDATA APID=1 COUNT=-1** **START cmd2080**	Wait for message -- Packet Generator is ready to receive directives. Note: Port number depends on the Lan The telemetry driver starts sending packets.	
15.	Bring up the ‘cev’ display page Click the ‘Tlm Wins…’ button the Control window Select ‘cev’ Click ‘ok’	A display page list boxes appears. ‘cev’ appears in the selected text field. The cev page is displayed.	

16.	Enter a instrument command: Cmd:> **/CEF_SET_LRSXFR_HI** click ‘Resume’ click ‘Send’	Verify that command is transmitted successfully. Receipt confirmation for the frame will be shown in CLCW. A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
17.	Check ‘CEF_SET_LRSXFR’ on the ‘cev’ telemetry page. If the value is ‘DISABLE’ TV passes. If the value is ‘ENABLED’ TV fails.	The values will be displayed on the cev page If the command passes TV a message is displayed in the status column of the command Control window. If the command fails TV a message is displayed in the status column of the command Control window.	
18.	Repeat above steps to obtain TV pass and fail results.	TV fails or passes, a message is displayed in the status column of the command Control window	

19.	Enter a instrument command: Cmd:> **/MOD_SET_DR_SVD_UL** click 'Resume' click 'Send'	Verify that command is transmitted succesfully. Receipt confirmation for the frame will be shown in CLCW. A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
20.	Repeat above steps to obtain TV pass and fail results.	TV fails or passes, a message is displayed in the status column of the command Control window	
21.	Check 'MOD_CR_DRSVD_1LATCHD' on the 'cev' telemetry page. If the value is 'LATCHED' TV passes. If the value is 'UNLATCHED' TV fails.	The values will be displayed on the cev page If the command passes TV a message is displayed in the status column of the command Control window. If the command fails TV a message is displayed in the status column of the command Control window.	
22.	Repeat above steps to obtain TV pass and fail results.	TV fails or passes, a message is displayed in the status column of the command Control window	

23.	Enter a instrument command: Cmd:> **/MOD_ENABLE_CPA_EPWRT** Click 'Resume'. Click 'Send'.	Verify that command is transmitted succesfully. Receipt confirmation for the frame will be shown in CLCW. A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
24.	Check 'MOD_CR_CPA_EEP_WRE_S' on the 'cev' telemetry page. If the value is 'DISABLED' TV passes. If the value is 'ENABLED' TV fails.	The values will be displayed on the cev page If the command passes TV a message is displayed in the status column of the command Control window. If the command fails TV a message is displayed in the status column of the command Control window.	
25.	Repeat above steps to obtain TV pass and fail results.	TV fails or passes, a message is displayed in the status column of the command Control window.	

26.	Enter a spacecraft command: Cmd:> **/ COM_SELECT_SBT2_PN50** Click 'Resume'. Click 'Send'.	Verify that command is transmitted succesfully. Receipt confirmation for the frame will be shown in CLCW. A send/cancel message will flash in the status column of the Command Control window. The message in the status column indicates that the command has been processed. View event display indicating: command <cmd mnem> (where <cmd_mnem> = Cmd entered) was successfully built with binary displayed. CLTU id <cmd_mnem> placed in command data block #. The # will be based on the number of command data blocks sent. The command data block is successfully transmitted to EDOS.	
27.	Check 'COM_CR_SBT2_PN_SEL on the 'cev' telemetry page. If the value is '50' TV passes. If the value is any other number TV fails.	The values will be displayed on the cev page If the command passes TV a message is displayed in the status column of the command Control window. If the command fails TV a message is displayed in the status column of the command Control window.	
28.	Repeat above steps to obtain TV pass and fail results.	TV fails or passes, a message is displayed in the status column of the command Control window	

29.	From User Station(optional): a. Enter the following to change directory to setup %: cd /fosb/test/am1/scripts/setup b. run MyKill.	All processes has been brought up before will be killed.	
30.	Log off User Station.		
31.	End of test.		

Memory Dump Image

Test Case No: CMS 2000B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, Telemetry packet generator, a procedure with dump initiate command

Test Description:

This test is designed to verify FOS has the capability to support that a user can successfully dump and store it in a file, in an area of memory on the spacecraft, and ensures a dump compare can be successfully performed. This test will also ensures a user can overwrite the current values of the ground reference image with the contents of a dump from the spacecraft. The Command Management Subsystem (CMS) will generate a report on the contents of a dump file, the ground image, load image or dump image. For this test we will generate a report on a dump file.

Using the FUI tools and ECL directives the user can convert a table dump file to a table load contents file. The table load contents file will then be ingested into the FUI table load builder, the user can perform a table dump, a file will be created, this file can be compared with the default values in the data base for that table.

Success Criteria:

The success of this test requires the demonstration that FOS provides the user the capability to generate a dump and store it in a file in an area of memory. The user can issue ECL directives through the use of FUI tools, CMS will automatically process the request and generate the dump image, report, the ground comparison.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	

3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Invoke the Event Display window by entering the following in the ECL directive line. Click the 'TOOLS' button on the Control window. Select Event Display-Global. Click 'OK'	A list box appears. Event Display-Global appears in the selection filter box. An event display window appears.	
5.	Connect to a real-time string. From the Control window enter the following ECL directive. ECL> STRING CONNECT STRING=100 CONFIG=MIRROR	String Manager will attempt to connect to a real-time string when this process is complete, an event message: 'Successfully connected to string 100'.	
6.	Take CAC privilege (user1). Using the ECL command line in the Control window enter: ECL>**TAKE COMMAND STRING = 100** ECL> **TAKE GROUNDCONTROL STRING=100**	An event message via event display indicating privileges have been granted. Message should indicate userid and workstation hostname.	
7.	Activate Command Control window using the following Tool directive from the Control window: > **TOOL Command_Control**	A dialog box will appear allowing user to enter String id and Spacecraft id.	

8.	Enter String id (ex. 100). Enter Spacecraft ID (ex. AM1). Click “OK”.	The Command Control window is displayed with all five user interface (pull down) menus; File, Edit, Config, Utility, and Help. There are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS (Note: User may need to resize window if all columns are not displayed.)	
9.	Start ‘sc’ Command Tool. From a terminal window enter the following: % **rlogin <hostname>** where hostname= real-time server % **cd /fosb/test/am1/scripts/setup** % **setenv SCRIPT RealTimeServer** % **source FosEnvVars** % **cd /fosb/test/am1/bin/sun_sparc_5-5** % **sc AM1 100 Ops**	The real-time host name will be displayed at prompt. The environment variables need to run the tool will be set. The tool will start sending CLCWs. CLCWs will be generated. The following messages will be displayed: ***sc waiting for messages*** CLCW before send to FOP 0	
10.	From the Command input line in the Command Control window, initialize FOP: >**FOP INIT CHECK** Click ‘Resume’. Click ‘Send’.	The directive will be placed in the Directive column of the CCW. A send/cancel message will flash in the status column of the Command Control window. The following event messages will be generated: ‘String Manager successfully configured’. ‘FOP INIT with CLCW check successful.	

11.	**<u>Update the ground reference Table image</u>** Enter the following directive from the Control window ECL> MUN <loadname-including partitions> YYYY:DDD:HH:MM:SS.MMM	A event message is generated indicating the Table Memory model has been updated.	
12.	**<u>View ground reference image</u>** Click on 'TOOLS' button on Control window. Select 'Report Generator'. Click 'OK'. Select 'Ground Reference Image Reports (On Demand)'. Select 'Table'. Enter Table Name, Start and End locations in the text boxes provided. Click 'Ok'.	The Report Generator tool is displayed Ground Reference Image Reports (On Demmand) window is displayed. FUI will submit the request to the CMS memory model and a ground image report will be generated in the reports/image directory.	
13.	Update ground reference Table image. Enter the following directive from the Control window. ECL> **MUN <loadname-including partitions> YYYY:HH:MM:SS.MMM** Note: The load used is a partial load for the load used in the previous step.	A event message is generated indicating the Table Memory model has been updated.	

14.	Repeat **View ground reference image**	Verify ground reference image updated with the new information	
15.	From the CMD input line in the Command Control window enter the following commands to uplink the load, initiate the dump for 1K diagnostic rate ECL> LOAD <TableLoad> <partitionIndicator> <partitionAmount> ECL> /FS1_DUMP_TBLINIT1 TABLE_ID=<*tableid*> WORD_OFFSET=<*wordoffset*> WORD_COUNT<*wordcount*>	Once the telemetry receives the dump message, a file is opened, the file is closed when the number of words for the particular RT addressed is received. Telemetry sends process dump message to CMS for processing. An event message is sent indicating that the dump is finished The ground reference image has been updated	
16.	**Verification of formatted dump file** The dump input file is formatted and a formatted dump image file is generated. Go to the proper CMS directory % cd /fosb/test/am1/reports/table % ls -ltr	The CMS memory image receives the message, reads the input dump file, formats the data from the input file, and generates a formatted dump image file. This file will be used for dump compares and dump conversions. Verify there is a <filename>.fdmp associated the Telemetry <filename>.dmp	
17.	Verify the ground reference image was updated. Repeat **Ground Reference Image** steps.		

18.	From the CMD input line in the Command Control window enter the following commands to uplink the load, initiate the dump for 16K diagnostic rate ECL> LOAD <TableLoad> <partitionIndicator> <partitionAmount> ECL> /FS1_DUMP_TBLINIT1 TABLE_ID=<*tableid*> WORD_OFFSET=<*wordoffset*> WORD_COUNT<*wordcount*>	Once the telemetry receives the dump message, a file is opened, the file is closed when the number of words for the particular RT addressed is received. Telemetry sends process dump message to CMS for processing. An event message is sent indicating that the dump is finished The ground reference image has been updated	
19.	Repeat **Verification of formatted dump file** step.		
20.	**Generate a dump comparison report** From the Control window, enter the image compare directive, to compare the dump file and the ground image file ECL>IMGCMP TABLE DUMP= <.dmpFile> GROUND START= _____ END=_____	FUI sends the image compare request to the CMS memory image subsystem. CMS does the compare and generates the image compare report. CMS will write the dump image file into the memory image. If necessary, the dump image file will overwrite any existing area that already has data. An event message is generated indicating the status of the compare.	
21.	**View Comparison Report** % cd /fosb/test/am1/reports/compare % ls -ltr % more <filename>	The files in the directory will be displayed in reverse time order.	

22.	**Generate a dump comparison report** From the Control window, enter the image compare directive, to compare two image different files. ECL> IMGCMP TABLE LOAD=<imageFile> LOAD=<imageFile>	A comparison report is generated and the number of miscompares is displayed in the event message	
23.	Repeat **View Comparison Report**	Verify the number of miscompares match the number indicated. Verify that each location is a miscompare.	
24.	**Generate a dump comparison report** From the Control window, enter the image compare directive, to compare two image files ECL> IMGCMP TABLE LOAD=<imageFile1> LOAD=<imageFile2> Note: imageFile1=imageFile2	A comparison report is generated and the number of miscompares is displayed in the event message. There should be '0' miscompares.	
25.	**Repeat View Comparison Report**	Verify there are no miscompares indentified	
26.	**Generate a dump comparison report** From the Control window, enter the image compare directive, to compare the dump file and the ground image file. ECL>IMGCMP TABLE DUMP= <.imageFile> GROUND		
27.	Repeat **View Comparison Report**.		

28.	Repeat **View Ground Reference Image**.		
29.	From the Control window, enter the image overwrite directive ECL> IMGOVER TABLE DUMP = <filename> START= END=	The image overwrite request is sent to the CMS memory image subsystem. CMS opens the dump file, overwrites the ground reference image with the contents of the dump file. An event message is generated indicating the status of the overwrite.	
30.	From the Control window, enter the image report directive and the dump file name that is to be reported. ECL> IMGRPT TABLE = <fileName>	A dump report request is sent to the CMS memory image subsystem. A report is generated by CMS. An event message is generated when the report is finished.	
31.	Use a mask to exclude certain areas of memory from an image compare. From the Control window enter the following directive ECL> IMGCMP TABLE LOAD=<filename> LOAD=<filenmae> MASK = <MaskFileName>	A comparison report is generated. The areas defined in the mask should be excluded from the report.	
32.	Repeat **View Comparison Report**.		
33.	Open the FUI Table Load Builder from the Tools button on the FUI command and Control window.	The Table Load Builder appears.	

34.	Select the Open Dump option under the File pull down menu on the Table Load Builder. Select a Dump file. Click 'OK'.	A list box appears. A request is automatically sent to CMS to be processed. CMS will use the table id, and retrieve the definition from the database. The values retrieved determine the table definition and will then be written to the table load contents file. An event will be written to the event display when the load contents file is generated. The Table Load Builder Tool will automatically ingest this generated load contents file into the Table load builder	
35.	**Generate a Table Dump Compare** From the Control window, enter the table image compare directive and the table dump for the compare. ECL> IMGCMP TABLE LOAD=<imageFile> LOAD= <.dmp fileName> Note: File Extensions are not needed.	The command will be inserted into the text are of the CCW. A send/cancel message will flash in the status column of the Command Control window. The command will be executed. The request is automatically sent to CMS for processing. CMS will generate a list of table values from the binary in the dump file. The computed value from the dump file is compared to the value for the field in the table definition. A report is generated for any miscompares.	
36.	End of test.		

Table Load Validation & Generation

Test Case No: CMS 2040B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, Document MIL STD 1750A

Test Description:

This test is designed to verify an authorized user's generation of a Table Load content file using the load builder tools available through FUI. In addition, the authorized user is provided a pre-defined table template with default parameter values defined in the Project Data Base that can be modified accordingly. This test demonstrates that the user is provided with the tools necessary to invoke the load builder to input, validate, and generate a table load. Once generation is complete this test will verify that CMS has stored the uplink load file, load image file, a load report, load contents file, and a load catalog entry in the FOS Database. The user will also have the capability to open and delete a table load from load catalog, open a table dump from load catalog, generate a load with the table load initiate command. The Scheduling of the load will be demonstrated in Test Case PAS 2110.

Success Criteria:

A user is able to select a Table Template using the FUI provided, and modify the contents to create a Table load. Demonstrate that FOS provides the user with the capability to ingest a table load content file. Once the Table Load contents are validated against the Table buffer characteristics defined in the Project Data Base an uplink load, image load, and a load report, load contents file, and load catalog entry associated with that table load are generated. Confirm the user is properly notified when the invalid load contents are detected during the validation process. Binary conversion of table load contents must conform to MIL STD 1750A.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Invoke the Event Display window by clicking the Tools button on the Control window and selecting Event Display Global from the list box.	A Tools Selection list box appears. The tool selected appears in the text field box. The Event Display Window is displayed.	

2.	Initiate the Table Load Builder Tool. Click the Tools button on the Control window and select Table Load Builder from the list box.	A Tools Selection list box appears. The tool selected appears in the text field box. The Table Load Builder window is displayed	
3.	Select a Table Template. Select New from the File menu	The Table Template Selection window appears.	
4.	From the Table Selection window select the Spacecraft id (note: system will default to AM1). .	The Spacecraft selected appears in the appropriate text field. The tables associated with the S/C will appear in the Table Template Selection window	
5.	Click on the desired Table Template. Click the 'OK' button.	The selected table appears in the "Selected Table Template " text box. The Table Template Selector window closes. The Table Load builder displays the corresponding table information: spacecraft ID, table type, and the default data field parameter values.	
6.	Define load contents by modifying the parameter values. Enter acceptable values within the min/max range (specified in the PDB) of that parameter. Enter a Table Name.	The value entered will be displayed in the highlighted text field of the pre-defined table template.	

7.	Generate a table load. Select "Generate" from File menu to execute load generation. The Time Selector window appears. Enter the uplink start time. >YYYY/DDD HH:MM:SS.mmm Enter the uplink stop time. >YYYY/DDD HH:MM:SS.mmm Click the “OK” button. Verify start and end field. Verify message(s) in the status line window. Verify event messages.	The times specified will appear in the Start and Stop text boxes. The message in the status window will indicate the following: Table load validation was successfully completed. The Table Generator dialog box window appears: Table type, S/C, Table Name, Start and Stop of Valid period, Start Field, End Field, Load Initiate CMD Table load generation complete for load <tablename>. (note: software is designed to validate prior to generation). Event messages indicating the load generation started and load generation completed. An uplink load (.upl), image load (.img) and a contents (.cnt) file are created.	
8.	Verify the uplink load (.upl) and an image load (.img) and contents (.cnt) file was created. Open a terminal window and enter the CMS directory. % **cd /fosb/test/am1/loads/table** % **ls -lt**	A list of files in the specified directory will appear. There will be an uplink, image load and contents file associated with the table load defined in the table load generation step.	
9.	Verify a load report was generated. % **cd /fosb/test/am1/reports** % **ls -lt**	A list of files in the specified directory will appear. There will be a file <tablename>.rpt associated with the table load that was generated.	

10.	Print the load report.. % **lp <filename>**		
11.	View the report associated with the generated table load.	The following items are included: (where applicable): -Load name. -Starting field # and ending field # memory location. -Load initiate cmd. -Contents of the load in hex, and in decimal, if applicable. -Valid uplink window. -Load size in bytes.	
12.	Verify load catalog entry was created and resides in the load catalog table in Sybase. Under the File option select Open Table. Provide the information requested in the dialog box.	The <tablename> will appear in the Load Catalog list box.	

13.	Verify the load contents of the image uplink file by using the DumpUplinkImage tool. a. % **cd /fosb/test/am1/scripts/setup** b. % **setenv SCRIPT UserStation** c. % **source FosEnvVars** d. % **cd /fosb/test/am1/bin/sun_sparc_5-5** e. % **FmUnDumpUplinkImage/**fosb/test/am1/loads/table/loadname.upl <directory path where .upl file resides>/<loadname>	The tool provides binary representation of the table load contents. The dump also includes the Filename, CRC, load initiate command, and Number of Packets.	
14.	Select a Table Template. Under "File" pull down menu select "New" option.	The Table Template Selection window appears.	
15.	From the Table Selection window select the Spacecraft id (note: system will default to AM1).	The Spacecraft Id appears in the text S/C field. The tables associated with the S/C appear in the Table Template Selection window.	
16.	Click on the desired Table Template. Verify selected Table appears in the "Selected Table Template " text box. Click the "OK" button.	The selected Table appears in the "Selected Table Template " text box. The Table Template Selector window closes. The Table Load builder displays the corresponding table information: spacecraft ID, subsystem, table type, table time, and the default data field parameter values.	

17.	Enter unacceptable values outside the high/low range specified. Select “Validate” under the “File” option. Browse the table load, for any invalid parameter field(s)	A appears message in the status window indicating which data fields are invalid and the error. (i.e. field descriptor error: invalid data entry	
18.	Modify the invalid parameters. Select “Validate” under the “File” option. Verify CMS does not start processing	The border returns to the normal state A message appears in the status window indicating the load validation is complete. No event messages are generated indicating load processing has started.	
19.	Verify a table can be opened from the load catalog. Select ‘Open Table’ from the File menu, click on Generate from the next file menu Click the “OK” button.	A load catalog list box appears. The Table will be displayed in the table load builder	
20.	Using the same table in the above step enter a series of invalid stop uplink time format with a valid start uplink time >1997/560 HH:MM:SS.mmm > 1197/300 12:00:56.760 > 1997/230 99:00;56.000	Each incorrect format entered should invoke a dialog box indicating invalid format specified	

21.	Using the same table in the above step enter a series of invalid start uplink time format with a valid stop up link time >**1997/560 HH:MM:SS.mmm** > **1197/300 12:00:56.760** > **1997/230 99:00;56.000**	Each incorrect format entered should invoke a dialog box indicating invalid format specified	
22.	Using the same table load enter the a start time greater than the stop time.	An error dialog box will be displayed indicating invalid times entered.	
23.	Delete a table load from the Load Catalog. Select Delete Table from the File menu.	A Selection dialog box for Delete will be display the file names from the Load Catalog	
24.	Select the desired file name. Click the "Yes" button.	A dialog box will be displayed prompting the user to confirm deletion The table load will be deleted from the load catalog. An event message will be displayed indicating the table load was deleted.	
25.	Delete a table load from the Load Catalog. Select Delete from the File menu.	A Selection dialog box for Delete will be display the file names from the Load Catalog	
26.	Select the desired file name Click 'No'	A dialog box will be displayed prompting the user to confirm deletion The table load will not be deleted from the load catalog. The dialog box should close and the tablename should still appear in the list box.	
27.	Repeat the steps to delete a load catalog entry. Do not specify a table to delete	An error dialog box will be displayed indicating the Selected Table Load does not exist.	

28.	Perform a table dump. Select Open Dump from the File menu. Select the desired filename.	A File Selection dialog box will be displayed with the table that is going to be dumped. The selected table dump will be converted to a content file and displayed in the table load builder. Should receive: no dumps	
29.	Select a Table Template. Under “File” pull down menu select “New” option.	The Table Template Selection window appears.	
30.	From the Table Selection window select the Spacecraft id (note: system will default to AM1).	The Spacecraft Id appears in the text S/C field. The tables associated with the S/C appear in the Table Template Selection window.	
31.	Click on the desired Table Template Verify selected Table appears in the “Selected Table Template ” text box. Click the “OK” button.	The selected Table appears in the “Selected Table Template ” text box. The Table Template Selector window closes. The Table Load builder displays the corresponding table information: spacecraft ID, subsystem, table type, table time, and the default data field parameter values.	
32.	Generate a table load by specifying the load initiate command. Click the tools button on the Control window and select “Table Load Builder” from the list box.	The Table Load Window is displayed.	
	Select “Generate” from the File menu to execute load generation. Close the dialog box.	An error dialog box indicates “Enter Table Load Name”.	

33.	Generate a partial load. Select “Open Table” from the File menu to select a previously created table load. Click on the desired file. Click the “OK” button. Enter a new name for the table selected in the “Table Name” box.	 The table is highlighted and appears in the “Selected Table Template” text box. The table is displayed and the new name appears in the “Table Name” box.	
34.	Select “Generate” from the File menu to execute the load. The Time Selector window appears, Enter the uplink start time. **>YYYY/DDD HH:MM:SS.mmm** Enter the uplink stop time. >**YYYY/DDD HH:MM:SS.mmm**	The times will appear in the Start and Stop text boxes.	

35.	Locate the “Start Field” and “Stop Field” boxes and manually insert a smaller number of items that fall within the range displayed. Click the “OK” button. Verify start and end fields. Verify message(s) in the status line window. Verify event messages. Select “Open Table” from the File menu and highlight the partial load created, <tablename>. The name is in the “Selected Table” box. Click on the “OK” button.	The number of items displayed reflect the numbers inserted manually. The message in the status window will indicate the following: Table load validation was successfully completed The Table Generator dialog box window appears: Table type, S/C, Table Name, Start and Stop of Valid period, Start Field, End Field, Load Initiate CMD Table load generation for <tablename> was successfully completed. (note: software is designed to validate prior to generation). Event messages indicating the load generation started and load generation completed. The load contains only the items selected. An uplink load (.upl), image load (.img) and a contents (.cnt) file are created.	
36.	Repeat steps 8 through 13 to verify the files created.		

Microprocessor & FSW Load Generation

Test Case No: 2060B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, DMS, RMS, CMS, CMD, FUI. It is necessary to generate support files (.cnt) prior to this test as well as database information containing valid min/max values for successful test execution.

Test Case Description:

This test is designed to verify that the FOS has the capability to support EOC in generating instrument loads from microprocessor load content and in generating flight software load from flight software load content.

This test begins with the initialization of the server and workstation so that the FUI Binary Load Builder window can be invoked at the user workstation. From the FUI Binary Load Builder window, the ingest process is invoked and the load contents file is selected. Once After load validation, the test continues with the uplink load generation. The Binary Load Builder window 'Generate' toggle button is used to initiate a request to CMS to generate the uplink load. The final steps of the test verify that the load catalog is updated with an entry for the uplink load generated. The scheduling of uplinking of loads will be demonstrated in Test Case CMS 2050.

Success Criteria:

The success of this test requires the demonstration that the FOS provides the user with a capability to ingest the instrument and flight software load contents file into the EOC. Following successful ingest, demonstration that the load contents file can be validated and used by CMS to generate an instrument & flight software uplink load. CMS generation of the uplink load will be invoked by a successful request from FUI Binary Load Builder. Demonstrate that CMS is capable of generating the load reports and load image files. Demonstrate that CMS is able to update the load catalog with an entry for the uplink load.

Note:

- Parameters inside the <> will be provided at run time.
- When necessary in this test, a displayed window may be resized and/or relocated in order to view data as related to a specific step.

Step Id	Action	Expected Result/Output	Pass/ Fail

1.	Log onto a EOC workstation, and open a terminal window. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):	Username: **fostest2** Password: *******	
2.	From a new terminal window: Start the Data Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Data Server processes are running.	
3.	From a new terminal window: Start the Real-Time Server. Refer to Test Case SYS-2000B – FOS Server Startup.	Real-Time Server processes are running.	
4.	From a new terminal window: Log onto an FOT User Station: Start the User Station. Reference Test Case SYS-2010B – User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
5.	Click on the **Tools** button from Control window.	The Tool Selection Dialog Box will appear on the screen.	
6.	Select **Event_Display_Global** from the Tool Selection Dialog Box.	The Event Display window will appear on the screen.	
7.	Click on the **Tools** button from Control window.	The Tool Selection Dialog Box will appear on the screen.	
8.	Select **Binary Load Builder** from the Tool Selection Dialog Box.	The Binary Load Builder dialog box will appear on the screen.	

9.	Copy a file from the ".../loads/mp directory (if applicable) to the user's home directory. Ex: AM1_MPR_CERES_test1_01_01.cnt		
10.	From the "File" pull down menu, select **Ingest**. Note: You may ingest all files at this time.	A file selection dialog box is displayed.	
11.	Filter on the user's home directory for the naming convention.	The file is highlighted and selected for loading.	
12.	Select a load content file to be ingested. Click the "OK" push button.	The file selection dialog is removed. The load contents file is now shown in the load contents section of the Binary Load Builder display.	
13.	Generate the load ingested in previous steps and select from the load contents file list. (for example pick up a file for instrument load named CERES as: "**AM1_MPR_CER_** ….") Highlight and click **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: MPR (which is microprocessor), spacecraft: AM1, and name of the instrument load.	
14.	**Generate load**: Click on 'Select Time' and okay for the default time or enter a valid Uplink Start and Stop Time.	The selected times are shown correctly in the "Start Time" and "Stop Time" text fields.	
15.	Select a "Remote Terminal" option menu.	CTIU1 is displayed on the push button next to the Remote Terminal field. (Note: CTIU1 is one of the remote terminal id needed to build the load initiate command.)	

16.	Select a load initiate mnemonic from the "Mnemonic" option menu. (Refer to the database to get the minimum/maximum values) Note: If an invalid load size error occurs, choose a start and end location to get a valid size.	A standard set of AM1 load initiate mnemonics is displayed.	
17.	Enter locations in the "Start Location" and "End Location" text fields.	The computed size of the load appears in size field next to the "Size" label.	
18.	Enter a description of the load in the "Description" text field.	The description is displayed.	
19.	Select "OK" push button.	The Generate Binary Load Dialog is removed. Verify that via event display, CMS received the request and started to build the binary load. Verify that via the event display, the microprocessor load built successfully. An image load (.img), a contents (.cnt) file and uplink load (.upl) are created.	

20.	**<u>Verify Load Catalog entry (Use SYSBASE):</u>** Open an Xterm Window a. %: isql -Ufos_dba -P******* b. 1> use am1_fos_ops c. 2> go d. 1> select * from fos_load_cat e. 2> go View the Binary Load Builder and verify the file appears in the Load Catalog window.	Verify that the updated load catalog is stored/maintained within the DMS database. Verify that the load catalog fields include the load name, load_size, the uplink time, valid start time, valid stop time, and the spacecraft subsystem (sc_id). The miroprocessor load name (ex: CERES) will appear in the Load Catalog list box.	
21.	**<u>Verify the correct files are created:</u>** From an Xterm window a. Enter the following to change directory to verify the "*.img" and the "*.upl files were created: b. %cd /fosb/test/am1/loads/mp (directory for the 'mpr' file) or c. %cd /fosb/test/am1/loads/fsw (directory for the 'fsw' file) d. %ls - lt	A list of files in the specified directory will appear. There will be a file <microprocessor load name>.ing and a file <microprocessor load name>.upl associated with the load that was generated.	

22.	**<u>Verify Load Report:</u>** Enter the following to change directory to reports: a. % cd /fosb/test/am1/reports b. ls -lt *.rpt	A list of files in the specified directory will appear. There will be a file <microprocessor load name>.rpt associated with the load that was generated.	
23.	Print the load report: % lp <filename>	A hard copy of the report is sent to the printer.	
24.	View the report associated with the generated instrument load.	Verify that in the report all necessary load control commands append to the microprocessor or load. Verify that information such as: Load name, Load type, Valid uplink period, Load size in bits, Starting and ending memory location, contents of the load in hex, are shown in the report. Remote Terminal ID, Sub-address, and Word Count are also shown in the report. (Note: Those are part of Command Destination - 1553B Command Word.)	

25.	**Verify Load Contents:** Dump the image uplink file by using the FmUnDumpUplinkImage tool. a. % cd /fosb/test/am1/scripts/setup b. % setenv SCRIPT UserStation c. % source FosEnvVars d. % cd /fosb/test/am1/bin/sun_sparc_5-5 e. %FmUnDumpUplinkImage../../loads/ loadname.upl <directory path where .upl file resides>/<loadname>	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
26.	Select another file for instrument load named MISR from the load contents file list. Select **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: MPR (which is microprocessor), spacecraft: AM1, and name of the instrument load.	
27.	Repeat **Generate load** steps (14 -19, 21) for MISR instrument microprocessor load.		
28.	Repeat **Verify Load Catalog entry** step (20) for MISR.	Verify that load catalog entry was created and resides in the load catalog table in Sybase. The microprocessor load name (MISR) will appear in the Load Catalog list box.	
29.	Repeat **Verify Load Report** steps (22-24) for MISR.	Verify the load generation preappends the load initiate command, load descriptor, start address, word count and CRC. (Note: MISR loads use 16 bit CCSDS CRC)	

30.	Repeat **Verify Load Contents** step (25) for MISR.	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
31.	Select another file for instrument load named MODIS from the load contents file list. Select **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: MPR (which is microprocessor), spacecraft: AM1, and name of the instrument load.	
32.	Repeat **Generate load** steps (14-19, 21) for MODIS instrument microprocessor load.		
33.	Repeat **Verify Load Catalog entry** step (20) for MODIS.	Verify that load catalog entry was created and resides in the load catalog table in Sybase. The microprocessor load name (MODIS) will appear in the Load Catalog list box.	
34.	Repeat **Verify Load Report** steps (22-24) for MODIS.	Verify the load generation preappends the load initiate command, load descriptor, start address, word count and CRC. (Note: MODIS loads use 16 bit CCITT CRC.)	
35.	Repeat **Dump the image uplink file** step (25) for MODIS.	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
36.	Select another file for instrument load named MOPITT from the load contents file list. Select **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: MPR (which is microprocessor), spacecraft: AM1, and name of the instrument load.	
37.	Repeat **Generate load** steps (14-19, 21) for MOPITT instrument microprocessor load.		

38.	Repeat Verify Load Catalog entry step (20) for MOPITT instrument load.	Verify that load catalog entry was created and resides in the load catalog table in Sybase. The microprocessor load name (MOPITT) will appear in the Load Catalog list box.	
39.	Repeat Verify Load Report steps (22-24) for MOPITT.	Verify the load generation preappends the load initiate command, load descriptor, start address, word count and CRC. (Note: MOPITT loads use 16 bit CCITT CRC)	
40.	Repeat Dump the image uplink file step (25) for MOPITT.	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
41.	Select another file from the load contents file list to generate flight software load (for example this time pick up a file for flight software load such as: "**AM1_FSW_CERES**…" Select **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: FSW (which is flight software), spacecraft: AM1, and name of the flight software load.	
42.	Repeat Generate load steps (14-19, 21) for flight software load.	The selected times are shown correctly in the "Start Time" and "Stop Time" text fields. The computed size of the load appears in size field next to the "Size" label. CTIU1 is displayed on the push button next to the Remote Terminal field. (Note: CTIU1 is one of the remote terminal ids needed to build the load initiate command; Others may be selected.)	

43.	**Verify Load Catalog entry (Use SYSBASE):** Open an Xterm Window a. %: isql -Ufos_dba -P******* b. 1> use am1_fos_ops c. 2> go d. 1> select * from fos_load_cat e. 2> go View the Binary Load Builder and verify the file appears in the Load Catalog window.	Verify that the updated load catalog is stored/maintained within the DMS database. Verify that the load catalog fields include the load name, load_size, the uplink time, valid start time, valid stop time, and the spacecraft subsystem (sc_id). The flight software load name (ex: CERES) will appear in the Load Catalog list box.	
44.	**Verify Load Report:** Enter the following to change directory to reports: a. % cd /fosb/test/am1/reports (if this directory is already set, skip). b. ls -lt *.rpt	A list of files in the specified directory will appear. There will be a file <flight software load name>.rpt associated with the load that was generated.	
45.	Print the load report: % lp <filename>	A hard copy of the report is sent to the printer.	

46.	View the report associated with the generated flight software load.	Verify that in the report should show all necessary load control commands append to the flight software load. Verify that information such as: Load name, Load type, Valid uplink period, Load size in bytes, Starting and ending memory location, contents of the load in hex, are shown in the report. Verify the load generation preappends the load initiate command, load descriptor, start address, word count and CRC. (Note: GNC flight software loads use a 16 bit checksum in place of CRC. All other AM1 flight software loads use the 16 bit CCSDS CRC)	
47.	Repeat **Verify load contents** step (25) for flight software load.	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
48.	Select another file for instrument load named MISR from the load contents file list. Select **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: FSW (which is flight software), spacecraft: AM1, and name of the instrument load.	
49.	Repeat **Generate load** steps (14 -19, 21) for MISR instrument flight software load.		
50.	Repeat **Verify Load Catalog entry** step (43) for MISR.	Verify that load catalog entry was created and resides in the load catalog table in Sybase. The flight software load name (MISR) will appear in the Load Catalog list box.	

51.	Repeat **Verify Load Report** steps (44-46) for MISR.	Verify the load generation preappends the load initiate command, load descriptor, start address, word count and CRC. (Note: MISR loads use 16 bit CCSDS CRC)	
52.	Repeat **Verify Load Contents** step (25) for MISR.	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
53.	Select another file for instrument load named MODIS from the load contents file list. Select **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: FSW (which is flight software), spacecraft: AM1, and name of the instrument load.	
54.	Repeat **Generate load** steps (14 -19, 21) for MODIS instrument flight software load.		
55.	Repeat **Verify Load Catalog entry** step (43) for MODIS.	Verify that load catalog entry was created and resides in the load catalog table in Sybase. The flight software load name (MODIS) will appear in the Load Catalog list box.	
56.	Repeat **Verify Load Report** steps (44-46) for MODIS.	Verify the load generation preappends the load initiate command, load descriptor, start address, word count and CRC. (Note: MODIS loads use 16 bit CCSDS CRC)	
57.	Repeat **Verify Load Contents** step (25) for MODIS.	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
58.	Select another file for instrument load named MOPITT from the load contents file list. Select **Generate**.	The Generate Binary Load dialog is displayed with the correct load type: FSW (which is flight software), spacecraft: AM1, and name of the instrument load.	

59.	Repeat **Generate load** steps (14 -19, 21) for MOPITT instrument flight software load.		
60.	Repeat **Verify Load Catalog entry** step (43) for MOPITT.	Verify that load catalog entry was created and resides in the load catalog table in Sybase. The flight software load name (MOPITT) will appear in the Load Catalog list box.	
61.	Repeat **Verify Load Report** steps (44-46) for MOPITT.	Verify the load generation preappends the load initiate command, load descriptor, start address, word count and CRC. (Note: MOPITT loads use 16 bit CCSDS CRC)	
62.	Repeat **Verify Load Contents** step (25) for MOPITT.	Verify that the dump includes the file name, CRC, load initiate command, and Number of Packets.	
63.	**Delete Load Catalog entry**: a. Select one from Load Catalog entry b. Click 'Delete' button.	A Question Dialog box is displayed to confirm the deletion. Note: Cannot delete loads that have been uplinked.	
64.	Select 'Yes' or 'No' in the Question Dialog box.	Select 'Yes' will send a request to CMS to delete the load from the load catalog. The result of deletion will be displayed as an event in the Control window. Select 'No' will ignore the deletion.	
65	**Delete Load Contents**: a. Select one from Load Contents. b. Click 'Delete' button.	A Question Dialog box is displayed to confirm the deletion.	
66.	Select 'Yes' or 'No' in the Question Dialog box.	Select 'Yes' will delete the file from the ingest directory. Select 'No' will ignore the deletion.	

67.	End of test.		

ATC Load Generation & Validation

Test Case No.: CMS-2090B

Test Configuration: See Appendix G

Test Support: Test support will consist of pre-planned mission schedules developed in prior test cases. The activities utilized for scheduling purposes are created in test case PAS-2000B (Activity Definer Tool Test Procedure). Database utilities are needed for creating and inserting Hard and Soft constraints in conjunction with the activities. Careful planning to ensure these pre-requisites are met is essential. The test will interface with the CMS, PAS, and FUI subsystems. The following tools are needed as well: EOS Timeline, General Scheduler, Load Generator, Ground Script Display, and Control window.

Test Description:

This test verifies the Command Management Subsystem (CMS) capability to support the generation of an ATC load from Detailed Activity Schedule (DAS) received from Planning & Scheduling (PAS). This test also verifies the CMS' capability to support the generation of a ground script over the same time period as the ATC upon receipt of a valid request from the User Interface.

The test begins with the creation of the DAS using Planning & Scheduling delivered tools. The DAS will include activities and commands that were scheduled against the master plan. Once the DAS is created, a request is sent to the CMS Schedule Controller process for expansion of the DAS and generation of the ATC load. Upon completion of the ATC load, the PAS receives a completion status from CMS. Because the ATC load generation is primarily a background process, this test will require analysis on the part of the test team to ensure the build and storage of the load, creation of the load report, integrated report and the update of the load catalog.

After ATC load generation, this test verifies the CMS capability to support a FUI request for ground script generation. A request will be sent to CMS for ground script generation over the same time period as the DAS. The test will require analysis on the part of the test team to verify the contents of the ground script against the DAS and ATC load.

The final steps of the test verify the CMS' capability to support the handling of an erroneous DAS sent from PAS. An effort will be made by the test team to create an 'empty' DAS (i.e. over a time period in which activities and commands are not scheduled against the master plan). Testing will verify that the PAS/CMS processes are capable of recognizing an erroneous DAS and generate an error status to the user as opposed to processing the DAS.

Success Criteria:

The success of this test requires demonstration of an ATC load generation with soft constraints and the capability to prohibit hard constraints as well as the ability of an user to select a portion of the PAS timeline master plan and generate a DAS. This test requires a DAS to be sent successfully to the CMS Schedule Controller process for expansion and ATC load generation. ATC load generation will consist of the generation of the binary load, load report, integrated report and an update to the load catalog. Upon completion of the ATC load generation, CMS will return a completion status to the PAS load generator process. In addition, FUI automatically requests CMS to generate a ground schedule that corresponds to the start and stop time of the DAS used for ATC load generation. Erroneous DASs are recognized and the appropriate error message is sent to the user while the DAS is unsuccessfully processed.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	
3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
5.	Select the 'Event Display Global' option. Click the 'OK' button.	The Tools dialog box closes. The Event Display window appears.	
6.	Verify the 'EOS Timeline' is visible or Double Click on the icon.	The EOS Timeline window is displayed.	

7.	Verify the 'Load Generator' is visible or Double Click on the icon. Record the DAS Start Date and Time for future reference.	The Load Generator window is displayed.	
8.	Verify the 'General Scheduler' is visible or Double Click on the icon.	The General Scheduler window is displayed.	
9.	**PART ONE**		
10.	Within the EOS Timeline select the 'Open' option under the File menu.	The New Plan dialog box appears.	
11.	Select the Plan Name. **Master Plan** Enter a start date and time or use the default start time. **TBD** Enter a stop date and time based on the scheduled activities. **TBD** Click the 'OK' button. Record the times for future reference.	The Open Plan dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The Event Display message indicates: Master Plan opened from <start time> to <stop time>. The EOS Timeline displays the times inserted.	
12.	**General Activity Scheduling** From the General Scheduler window, click the 'Resource' button and select TBD.	TBD appears on the Filter By Resource button.	
13.	Select the 'Activities' option from the 'Filter' menu.	A list of activities defined under the TBD resource appears in the Activities field.	

14.	Select the ‘TBD’ activity for scheduling. Select the ‘Master Plan:1’ as the scheduling plan.	The selected activity and plan are highlighted. Default scheduling information appears.	
15.	Select the ‘Impact’ option under the Action menu.	The Impact button is selected.	
16.	Enter a valid start and stop Date/Time in the designated box. (Ensure these times are within the times scheduled for the Master Plan.) Record times for reference. Select the ‘Schedule’ option from the ‘Action’ menu or click on the ‘Schedule’ button.	The activity will appear on the timeline in the specified scheduled location. The activity schedule message will appear on the Event Display. Note: Depending on previously scheduled activities, the resource chosen may have to be unlocked before scheduling is successful. A message may appear in the Events Window. This involves selecting ‘Show Locks’ on the Load Generate’ Window and unlocking the resource.	
17.	Click the ‘Save’ button on the timeline.	The current contents are saved to the Master Plan.	

18.	**Load Generate Window** Select the DAS/ATC Load toggle button. Select the Master Plan from the Plans field. Input a DAS Stop time. (Do not change the DAS start time.) **TBD** Input a valid Uplink Request time. (The Uplink time must start and end BEFORE the DAS Start time) **TBD** Click the 'Submit' button.	The job is submitted to the queue and the process will appear in the Jobs in Queue area. Upon completion the job will appear in the Jobs Completed area. A DAS end line will appear on the EOS Timeline at the specified location.	
19.	**Soft Constraint Activity Scheduling** Repeat the steps for **General Activity Scheduling;** however, schedule the activity that violates soft constraints.	Note: Depending on previously scheduled activities, the resource chosen may have to be unlocked before scheduling is successful. A message may appear in the Events Window. This involves selecting 'Show Locks' on the Load Generate' Window and unlocking the resource.	
20.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
21.	Repeat the steps for **Load Generate Window**.	The selected activity will appear on the timeline in the scheduled location.	
22.	Verify the activity in the Jobs Queue area is in the 'Pending' status.	The job remains in the pending status.	

23.	Click on the activity. Click on the 'View Constraint' button.	The activity is highlighted. A Soft Constraint Violation dialog box will appear. A list of the violations will appear within the box.	
24.	Verify the violations are correct and click on the violation. Click 'Approve' to allow the DAS to complete.	The Soft constraint Violation dialog box closes. The DAS is completed successfully. Upon completion the job will appear in the Jobs Completed area. A DAS end line will appear on the EOS Timeline at the specified location.	
25.	**Hard Constraint Activity Scheduling** Repeat the steps for **General Activity Scheduling;** however, schedule the activity that violates hard constraints.	Note: Depending on previously scheduled activities, the resource chosen may have to be unlocked before scheduling is successful. A message may appear in the Events Window. This involves selecting 'Show Locks' on the Load Generate' Window and unlocking the resource.	
26.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	

27.	Repeat the steps for **Load Generate Window**.	The selected activity will appear on the timeline in the scheduled location. The job is submitted to the queue and the process will appear in the Jobs in Queue Area. Upon completion the job will appear in the Jobs Completed Area as failed. The Event Display messages indicate the DAS has failed and the number of violations.	
28.	Click on the the activity in the Jobs Completed Area.	The activity is highlighted.	
29.	Click on the 'View Constraint' button.	A Hard Constraint Violation dialog box will appear. A list of the violations will appear within the boxes. No DAS or ATC loads are created	
30.	Verify the violations are correct and click the 'Close' button to close out the box.	The Hard Constraint Violation dialog box closes.	
31.	From the 'EOS Timeline', select the violating activity.	The activity is selected.	
32.	Within the General Scheduler click the 'Unschedule' or 'Cut' button.	The activity is removed from the Master Plan and off the timeline.	
33.	Click the 'Save' button on the timeline.	The current contents are saved to the Master Plan.	
34.	**Soft and Hard Constraint Scheduling** Repeat the steps for **General Activity Scheduling;** however, schedule the activity that violates soft and hard constraints.	Note: Depending on previously scheduled activities, the resource chosen may have to be unlocked before scheduling is successful. A message may appear in the Events Window. This involves selecting 'Show Locks' on the Load Generate' Window and unlocking the resource.	

35.	Click the ‘Save’ button on the timeline.	The current contents are saved to the Master Plan.	
36.	Repeat the steps for **Load Generate Window**.	The selected activity will appear on the timeline in the scheduled location. The job is submitted to the queue and the process will appear in the Jobs in Queue Area. Upon completion the job will appear in the Jobs Completed Area as failed. The Event Display messages indicate the DAS has failed and the number of violations.	
37.	Click on the the activity in the Jobs Completed Area.	The activity is highlighted.	
38.	Click on the ‘View Constraint’ button.	A Soft and Hard Constraint Violation dialog box will appear. A list of the violations will appear within the box. No DAS or ATC loads are created.	
39.	Verify the violations are correct and click the ‘Close’ button to close out the box.	The Violation dialog box closes.	
40.	From the ‘EOS Timeline’, select the violating activity.	The activity is selected.	
41.	Within the General Scheduler click the ‘Unschedule’ or ‘Cut’ button.	The activity is removed from the Master Plan and off the timeline.	
42.	Click the ‘Save’ button on the timeline.	The current contents are saved to the Master Plan.	
43.	Close the EOS Timeline.		

44.	**Verify Load Catalog Entries:** Record the Job ID for all of the loads completed sucessfully.	The Load ID's for the General Activity and Soft Constraint Activity are successful.	
45.	From an Xterm window a. %: isql -Ufos_dba -P******* b. 1> use am1_fos_ops c. 2> go d. 1> select * from fos_load_cat e. 2> go	Verify that the updated load catalogs are stored /maintained within the DMS database.	
46.	**Verify the correct files are created:** From an Xterm window a. % cd /fosb/test/am1/loads/atc % ls -lt Verify the ATC load contents (*.cnt), the load image (*.img) and the uplink (*.upl) files are created for each load.	A list of files in the specified directory will appear for each load.	
47.	Verify the ATC load reports have been generated and stored. The files are stored in the following directories: a. % cd /fosb/test/am1/reports b. % ls -lt *.rpt	A list of files in the specified directory will appear for each load. There will be a file <filename>.rpt associated with each load generated.	

48.	Print the load reports: % lp -o landscape <filename>.rpt	A hard copy of the reports are sent to the printer.	
49.	View the reports associated with each load.	Note: Off-line Analysis includes verifcation of the following: The command portion of the ATC has been converted from mnemonic to binary. The time tag of each ATC has been converted to the applicable spacecraft compatible format. The time tags have a resolution of 1 second. The time tags have the following format: 2 bits representing day and 22 bits representing milliseconds of day. The load control commands (load init) have been pre-pended to the ATC load. The beginning and end boundaries of the ATC load generated corresponds to the boundaries selected for the expanded DAS.	

50.	**Verify Load Contents:** Dump the image uplink files by using the FmUnDumpUplinkImage tool. a. % cd /fosb/test/am1/scripts/setup b. % setenv SCRIPT UserStation c. % source FosEnvVars d. % cd /fosb/test/am1/bin/sun_sparc_5-5 e. % FmUnDumpUplinkImage ../../loads/loadname.upl < directory path where .upl files reside>/<loadname>	Verify the dumps include the file name, CRC, load initiate command, and Number of Packets. Note: Off-line Analysis includes verification of the following: Consistent format specified in ICD-106. Consistent format according to CCSDS packet protocol. Correct load size.	
51.	**PART TWO**		
52.	**No Activity Scheduling** Click on the 'General Scheduler' window. Click the 'Schedule' button without selecting an activity.	Note: Depending on previously scheduled activities, the resource chosen may have to be unlocked before scheduling is successful. A message may appear in the Events Window. This involves selecting 'Show Locks' on the Load Generate' Window and unlocking the resource.	
53.	Verify the error message. Click 'OK' to close the box.	An error message box appears indicating an item must be selected to schedule.	
54.	On the 'EOS Timeline', select 'Close' under the File menu.	The Master Plan is closed.	

55.	**<u>Partial Activity Scheduling</u>** Click on the 'Load Generator' window and record the DAS Start Date and Time for future reference.	Note: Depending on previously scheduled activities, the resource chosen may have to be unlocked before scheduling is successful. A message may appear in the Events Window. This involves selecting 'Show Locks' on the Load Generate' Window and unlocking the resource.	
56.	Within the EOS Timeline select the 'Open' option under the File menu.	The New Plan dialog box appears.	
57.	Select the Plan Name. **Master Plan** Enter a start date and time or use the default start time. **TBD** Enter a stop date and time for approx. 24 hours in the future. **TBD** Click the 'OK' button. Record the times for future reference.	The Open Plan dialog box closes. The timeline updates with the requested time period and plan name as Master Plan:1. The Event Display message indicates: Master Plan opened from <start time> to <stop time>. The EOS Timeline displays the times inserted.	
58.	From the General Scheduler window, click on the 'BAPS' button to schedule the activity.	The 'BAPS' button is selected.	
59.	Click the 'Resource' button and select TBD.	The TBD resource appears.	
60.	Select the 'Activities' option from the 'Filter' menu.	A list of activities defined under the TBD resource appears in the Activities field.	

61.	Select the 'TBD' activity for scheduling. Select the 'Master Plan:1' as the scheduling plan.	The selected activity and plan are highlighted. Default scheduling information appears.	
62.	Select the 'Impact' option under the Action menu.	The Impact button is selected.	
63.	Enter a valid start and stop Date/Time in the designated box. (Ensure these times are within the times scheduled for the Master Plan and are approx. 24 hours.) Record times for reference. Select the 'Schedule' option from the 'Action' menu or click on the 'Schedule' button.	Note: Due to the length of the activity, the time to schedule the activity will vary. The activity will appear on the timeline in the specified scheduled location. The activity schedule message will appear on the Event Display. Note: Depending on previously scheduled activities, the resource chosen may have to be unlocked before scheduling is successful. A message may appear in the Events Window. This involves selecting 'Show Locks' on the Load Generate' Window and unlocking the resource.	
64.	Click the 'Save' button on the timeline.	Note: The time to do this may vary. The current contents are saved to the Master Plan.	

65	From the Load Generate Window, select the DAS/ATC Load toggle button. Select the Master Plan from the Plans field. Input a DAS Stop time approx. 24 hours in length. (Do not change the DAS start time.) **TBD** Input a valid Uplink Request time. (The Uplink time must start and end BEFORE the DAS Start time) **TBD** Click the 'Submit' button.	Note: The time to do this may vary. The job is submitted to the queue and the process will appear in the Jobs in Queue area. Upon completion the job will appear in the Jobs Completed area. A DAS end line will appear on the EOS Timeline at the specified location.	
66.	Repeat the steps to **Verify Load Catalog Entries**.		
67.	Repeat the steps to **Verify The Correct Files Are Created.**		
68.	Repeat the steps to **Verify Load Contents**.		
69.	**<u>Ground Script Display</u>** Print the Integrated reports associated with each ATC load generated to verify the accuracy of the load information. % cd /fosb/test/am1/reports/integrated % ls -lt % lp -o landscape <integrated report name>	Verify the following information: -Reporting Period Start/Stop Times. -ATC Load Location. -ATC Load Command and Description . -ATC Command Mnemonic and Description. -ATC Safe Command Load Information.	

70.	**<u>Appended Command Verification</u>** View the <TBD> activity to determine which commands are defined as appended commands for each ATC load. Verify that the command(s) is listed last in the Load Contents Report under the Command Mnemonic and Command Binary sections of the report.	Note: The SAFE_ACTIVITY name in the FmMm…. Configuration file contains the activity name with the valid appended commands. Off-line Analysis to be performed.	
71.	End Of Test.		

ATC Load Management

Test Case No.: CMS-2100B

Test Configuration: See Appendix G

Test Support: Test support consists of interfacing with CMS, PAS, and FUI. The following tools should be available; General Scheduler, EOC Timeline, Load Generator, ATC Buffer Display, and Control window. System directories should be available for the storage of related reports as well. Retrieve the ATC Load Reports for each load and a printout of each activity scheduled for the load.

Test Description:

This test will demonstrate the ability to create an partitioned ATC load. The use of the ATC buffer is displayed to show the available command locations. Several reports are verified to meet specific requirements.

Success Criteria:

Success is measured on the ability to generate and verify related reports; the ability to partition ATC loads; the ability to manipulate the ATC buffer display.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B – FOS Server Startup.	Data Server processes are running.	
2.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B – User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
3.	Within the Control window, click the 'Tools' button.	The Tools dialog box appears.	

4.	Select the 'Event Display Global' option. Click the 'OK' button. Customize the Events.	The Tool dialog box closes. The Event Display window appears.	
5.	**Manual Uplink Notification** Enter the MUN command to send manual uplink notification to CMS. From the Command Input line: Enter: **MUN <Full Uplink Load File Name> <time (YYYY.DDD.HH.MM.SS.sss)>** Note: This information comes from the uplink times on the load report for each load.	The Event Display message indicates 'successfully updated ATC Buffer Model with load <loadname>'. The ATCBuffer,mdl file is created in the reports directory.	
6.	Within the Control window, click the 'Tools' button.	The Tools dialog box appears.	
7.	**ATC Buffer Display Information** Select the 'ATC Buffer Display'. Click the 'OK' button.	The Tool dialog box closes. The ATC Buffer Display window appears.	
8.	From the ATC Buffer Dialog box, Enter information on the following, based on the load information: Select the options available for: Start Address, End Address, Sub/Instr Click 'Apply' and 'OK'. Repeat using the maximum number of commands	A separate window displays the requested information. Verify the following information based on the load report: a. Address Locations b. No. Of Commands c. No. Of Critical Commands	

	allowable.	d. Command Information	
9.	Within the Control window, click the 'Tools' button.	The Tools dialog box appears.	
10.	**Modeling Report Information** Select the 'Report Generator' from the list box.	The Report Selector display window appears.	
11.	In the Report Selector display, select the spacecraft id, the Report Category and the Report Type. From the Spacecraft Id pull down, select AM1, from the Report Category pull down, select CMS, click the On Demand toggle button.	The Report Selector display will filter in AM1, CMS on demand reports and display the available report types in the Available Reports section of the Report Selector diplay.	
12.	Select Modeling Reports from the Available Reports section of the Report Selector display and click 'OK'. Select Default time or click on 'Select Time' and 'OK' for a specific time period. Click'OK'.	The Report Selection display disappears and On_Demand Report Selector display appears. The display will contain the Modeling Reports in the Report Name text field, the User Name in the Requester Name text field, and the default start and stop time in the appropriate fields. The default stop time will be current time and the start time will be 2 hours earlier. (time will be in the format YYYY/DDD HH:MM:SS.mmm	
13.	From the On_Demand Report Selector click on the New Report… push button.	The On_Demand Report Specification display will appear and display the available reports for the CMS on demand category. These report types will appear in a selection dialog portion of the display. The available types are ATC Map Report, RTS Buffer Report, RTS Map Report, Table Buffer Report and Table Map Report.	
14.	From the On_Demand Report Specification display, select	The ATC Map report	

	ATC Map Report and click on Apply.	(AM1_ATC_Buffer_NNN…rpt) is generated in the reports directory.	
15.	Go to the Reports directory and print the report: % cd /fosb/test/am1/reports % ls -lrt *.rpt % lp -o landscape (AM1_ATC_Buffer_NNN….rpt)		
16.	Repeat the steps for Manual Uplink Notification another load.		
17.	Repeat the steps for ATC Buffer Display Information.		
18.	Repeat the steps for Modeling Report Information.		
19.	Buffer Overflow Repeat the steps for Manual Uplink Notification until the maximum number of commands are reached and the buffer is full.		
20.	Repeat the steps for ATC Buffer Display Information.		
21.	Repeat the steps for Modeling Report Information.		
22.	Buffer Verification Verify the ATC Buffer Reports for each uplinked load contains the updated information. Verify the information matches the load report information.	Verify the following: Memory Location, Command Exec Time, Command Mnemonic, Critical flags, Command Data is in Hex.	

23.	End of test.		

Relative Time Sequence (RTS) Load Validation & Generation

Test Case No: CMS 2170B

Test Configuration: See Appendix G

Test Support: EOC startup scripts, Document MIL STD 1750A

Test Description:

This test is designed to verify the capability to support the generation of a Relative Time Sequence (RTS) load content file using the FUI RTS Load Builder Tool. This test demonstrates that an authorized user can create a RTS load and invoke the FUI upon completion. The CMS subsystem generates a RTS load contents file, an uplink load file, an image load file and a report associated with that load. Another objective of this test is to verify CMS can store the uplink and load images files and send them to DMS to be saved as a load catalog entry. The validation process will be provided through the CMS prior to generation. If there are hard and soft constraint violations defined in the FOS database. If a RTS load contains soft constraints the user will prompted to generate the load and override the soft constraint. However, if the load contains a hard constraint the user will be notified and load will not be generated. The user will also have the capability to open or delete a RTS load based on the Load Catalog entry and define up to sixteen command mnemonics (i.e. critical, submnemonic).

Success Criteria:

The success of this test requires the demonstration that FOS provides the user the capability to generate RTS load contents the RTS Load Builder. Upon load generation the Meta Data server places an uplink file, an image file, and a report (stored by CMS) in the appropriate CMS loads and reports directories. Demonstrate that CMS is able to update the load catalog entry and send it to DMS. The users capability to ingest a RTS load. The user will be notified when the load contains a hard or soft constraint. The user will be allowed to override any soft constraints, however a load with hard constraints must be rejected for load generation. The user can define various types of commands, not to exceed sixteen.

Step Id	Action	Expected Result/Output	Pass/ Fail

1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
3.	Click the Tools button on the Control window and select Event_Display_Global from the list box. Click 'OK'.	An Event Display Window appears.	

4.	Initiate the RTS Load Builder Tool. Click the Tools button on the Control window and select RTS Load Builder from the list box. Click 'OK'.	A Tools Selection list box appears. The tool selected appears in the text field box. The RTS Load Builder window is displayed containing the following items; -Four Pull down menus File, Edit, Utility, and Help. -RTS# field box -Purpose text box -Spacecraft option menu -Sub/Inst option menu -CMD# field box -UTC field box -Delta Time field box -Command text box -Insert, Replace, Delete, Generate…, and Validate push buttons. -RTS Name: status line. -In the text area 4 columns CMD#, Delta Time, Ticks and Command.	

5.	Define an RTS Load: From the RTS Selection window select the Spacecraft id (note: system will default to AM1). Select Subsystem. Complete the following information: -RTS # -Purpose -CMD # -UTC & Delta Time	The Subsystem and the Spacecraft selected appear in the appropriate text fields. The RTSs associated with the S/C and Subsystem appear in the Table Template Selection window.	
6.	Select Directive Builder from the Utility pull down menu.	The Directive Builder appears. This window will contain the following: (1) An ECL text field. (2) Directive keywords text field and list box. (3) Subsystems list box with Filter button and selection buttons; All and None. (4) Cmds (Commands) and Tlms (Telemetry) selection buttons, text field and list box. (5) Selection Template list box. (6) Status message line. Control button selections; OK, Apply, Cancel, and Help.	

7.	Select commands. Filter on the desired subsystem. Filter on the following: **AM1_XXX** Click Select Click 'OK' Click on AM1_XXX Choose a command listed in Cmds list box. Click on that command. Deselect on the chosen directive. Double click on the chosen directive. Double click on one of the parameters (if applicable). Click 'OK' and then 'Insert'.	The Filter window closes and the filter selection appears in the filter box within the Directive Builder window. Note: XXX refers to the subsystem or IST. The Cmds list box contains command directive directives. Any qualifiers/parameters associated with that command are displayed in the 'Selection Templates:' list box The command directive is placed in the ECL text field box. The command parameter is appended to the command. There is no value associated with the parameter. The command will be inserted in the text area of the RTS Builder, and the Filter window will close.	
8.	Repeat the Define RTS steps to enter additional commands	The commands selected will appear in the text area of the RTS Load Builder.	
9.	**Validate a RTS Load:** From RTS Load Builder window, click on the Validate push button.	Verify message(s) in the status line window that RTS load validation was successfully completed. Verify the the "Pass" status button displays green.	

10.	**<u>Generate a RTS load:</u>** Click on "Generate" to execute load generation. Enter an absolute start and stop time for the Valid Uplink Period or Click on 'Select Time' for default values. Click on 'OK'. **>YYYY/DDD HH:MM:SS.mmm**	The RTS Generator dialog box will be displayed. The RTS #, Spacecraft, Sub/Instr, and Purpose Fields will be filled if those exist in the RTS Load Builder window The Start Time and Stop Time fields for Valid Period will be filled. .	
11.	Verify a command is in the Load Initiate text field	The entered data will be the Load Initiate.	
12.	Click ' OK' push button. Click 'No' and the load will not be generated. Select 'Save' from the File menu to save the load.	A request to generate a RTS Load will be sent to CMS and the RTS Generator dialog box will be closed. Any error encountered during the RTS load generation will be displayed in an Error Dialog box. The returned generation status from CMS will be displayed in the status line of the RTS Load.	

13.	**Verify a RTS Load** Verify message(s) in the status line window. Verify event messages	The message in the status window will indicate the following: -RTS load validation was successfully completed -RTS load generation for <*RTSname*> was successfully completed. (note: software is designed to validate prior to generation). -Event messages indicating the load generation started and load generation completed. -Verify the status button displays green. An uplink load (.upl), image load (.img) and a contents (.cnt) file are created	
14.	**Verify Creation of Files** Verify the uplink load (.upl) and an image load (.img) and contents (.cnt) file was created. Open a terminal window and enter the RTS directory. % **cd /fosb/test/am1/loads/rts** % **ls -lt**	A list of files in the specified directory will appear. There will be an uplink, image load and contents file associated with the RTS load defined in the RTS load generation step.	
15.	**Verify a Load Report** % **cd /fosb/test/am1/reports** % **ls -lt *.rpt**	A list of files in the specified directory will appear. There will be a file <*RTSname*>.*rpt* associated with the RTS load that was generated.	
16.	Print the load report. % **lp <filename>**	A hard copy of the report is sent to the printer.	

17.	View the report associated with the generated RTS load.	The following items are included: (where applicable): -Load name. -Starting and ending memory location. -Load type. -Contents of the load in hex, and in decimal. -Valid uplink period. -Load size in bytes.	
18.	**Verify Load Contents** Verify load catalog entry was created and resides in the load catalog table in Sybase. Under the File option select Open. Provide the information requested in the dialog box. Click on 'Load Catalog' and verify the filename.	The <RTSname> will appear in the Load Catalog list box.	

19.	Verify the load contents of the image uplink file by using the DumpUplinkImage tool. % **cd /fosb/test/am1/scripts/setup** % **setenv SCRIPT UserStation** % **source FosEnvVars** % **cd /fosb/test/am1/bin/sun_sparc_5-5** % **FmUnDumpUplinkImage** /fos/test/am1/loads/rts loadname.upl <directory path where .upl file resides>/<loadname>	The tool provides hex representation of the RTS load contents. The dump also includes the Filename, CRC, load initiate command, and Number of Packets.	
20.	**RTS Load Generated From A Previous Load** Select Quit from the File pull down menu. Click the Tools button on the Control window and select RTS Load Builder from the list box.	A tool Selection list box appears. The tool selected appears in the test field box. The RTS Load Builder window is displayed.	
21.	Select Open from the File pull down menu.		
22.	Click on 'Ingest Directory' and choose a file name Click on 'OK' .	The file is highlighted and appears in the Selection Box. The file is opened with command information in the text area.	
23.	Enter a new RTS#, Purpose and UTC/Delta Time information.	The new information is displayed in the appropriate boxes.	

24.	Click on ‘Generate’. Click ‘Select Time’ and ‘OK’. Select ‘Save’ from the File menu.	The load is generated with the new information. The message in the status window will indicate the following: -RTS load validation was successfully completed -RTS load generation for <*RTSname*> was successfully completed. (note: software is designed to validate prior to generation). -Event messages indicating the load generation started and load generation completed. -Verify the status button displays green. An uplink load (.upl), image load (.img) and a contents (.cnt) file are created	
25.	Select ‘Open’ from the File menu. Click on the file just generated. Click ‘OK’.	The file appears in the selection list box. The file is displayed.	
26.	Follow the procedures to **Verify Creation of Files.**		
27.	Follow the procedures to **Verify a Load Report.**		
28.	Follow the procedures to **Verify Load Contents.**		

29.	**RTS Load With Soft Constraint** Select 'New' from the File menu. Follow procedures to **Define an RTS Load.** Follow procedures to **Generate a RTS Load.** Click 'Yes' to override any soft constraint violations where applicable.	**Note:** Select the specific subsytem and commands to generate soft constraint violations. **Note:** CMS will validate the load prior to generation. If there are soft constraints, a soft constraints window will appear prompting user to Generate load with violations.	
30.	Follow procedures to **Verify a RTS Load**.	The message in the status window will indicate the following: -RTS load validation was successfully completed -RTS load generation for <*RTSname*> was successfully completed. (note: software is designed to validate prior to generation). -Event messages indicating the load generation started and load generation completed. -Verify the status button displays green. An uplink load (.upl), image load (.img) and a contents (.cnt) file are created	
31.	Follow the procedures to **Verify Creation of Files.**		
32.	Follow the procedures to **Verify a Load Report.**		
33.	Follow the procedures to **Verify Load Contents.**		

34.	**RTS Load With Hard Constraint** Select 'New' from File menu. Follow procedures to **Define an RTS Load.** Follow procedures to **Generate a RTS Load.** Click 'OK' for hard constraints. The Load will not be generated.	**Note:** Select the specific subsytem and commands to generate hard constraint violations. **Note:** CMS will validate the load prior to generation. If the load has hard constraints a window will appear; however, the user can only acknowledge the constraint. Loads cannot be generated with hard constraints. Verify the Load was not generated.	
35.	**RTS Load With Submnemonics/Parameters** Select 'New' from File menu. Follow the procedures to **Define an RTS Load.** Specify the value of the parameter by entering the value after the equal sign. (note: the range is displayed) Click 'OK' and then 'Insert'. Follow procedures to **Generate a RTS Load.** Follow procedures to **Verify a RTS Load.**	**Note:** Select the specific subsytem and commands that require parameter information. The command directive and parameter with specified value are displayed in the ECL text box.	
36.	Follow the procedures to **Verify Creation of Files.**		
37.	Follow the procedures to **Verify a Load Report.**		
38.	Follow the procedures to **Verify Load Contents.**		

39.	**Error Conditions.** For each of the error conditions below, verify the dialog box displays the correct error information. a. No data in Delta Time field. (Click on Insert.) b. Command No. - No CMD# or Out Of Range. (Click on Insert.) c. RTS No.- No RTS# or Out Of Range. (Attempt to Generate Load.) d. Inconsistency between the mnemonic chosen and the subsytem selected. (Attempt to generate Load.) e. Cmd# greater than 16. (Attempt to Insert.)	Verify the correct messages are displayed for each error condition.	
40.	**<u>Open a RTS load from the Load Catalog</u>** Select Open from File menu. Select Load Catalog toggle button.	RTS Load names in the load catalog will be displayed in the listbox.	
41.	Select one RTS load name Click 'OK'	The selected RTS load will be displayed in the RTS Load Builder.	
42.	**<u>Delete the Load Catalog entry for a RTS load</u>** Select Delete from File menu. Select Load Catalog toggle button.	RTS Load names in the load catalog will be displayed in the listbox.	
43.	Select one RTS load name. Click 'OK'.	A Question Dialog box will be displayed to confirm the deletion.	

44.	Select Yes or No in the Question Dialog box. If Yes, verify the file is no longer present.	Select Yes will send a request to CMS to delete the load from load catalog . The result of the deletion will be displayed as an event in the Control window. Select No will ignore the deletion.	
45.	Select Delete from File menu. Do not select a RTS load name. Click 'OK'.	Delete Dialog box appears. Error Dialog box will be displayed with appropriate message.	
46.	Select Open from File menu. Do not select a RTS load name. Click 'OK'.	Delete Dialog box appears. Error Dialog box will be displayed with appropriate message.	
47.	End of test.		

RTS Load Management

Test Case No: CMS 2180B

Test Configuration: See Appendix G

Test Support: EOC startup scripts

Test Description:

This test is designed to verify that the RTS buffer in load management are being properly modeled. Load management should maintain a RTS buffer model that mirrors what is on the spacecraft for each of the 128 buffer locations. This test demonstrates that when the user uplinks a RTS load, CMS updates its buffer model. Once the load is uplinked and the buffer model is updated, the user can request a map report which is a summary report of all of the buffers, or the user can request a report on one specific RTS buffer. This test will also demonstrate the ability to view all available RTS loads that have been generated and that are stored in the DMS load catalog. The validation and generation of the RTS load is covered in Test Case CMS-2170B.

Success Criteria:

A user is able to generate both RTS buffer model reports and ensure the information contained in the report is correct. The second success criteria will be that the user can generate a report on the available RTS load for uplink via the load catalog. The third success criteria is that after a load is uplinked the CMS buffer model is updated with the contents of the newly uplinked load through the use of the Manual Uplink Notification directive.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	

3.	**Manual Uplink Notification** Use the Manual Uplink Directive (MUN) to uplink a RTS Load generated to update the RTS buffer. From the Command Control window enter the following directive: ECL> MUN <loadname> <partitionIndicator> <partitionAmount> YYYY:DDD:HH:MM:SS:mmm	An event message will be generated indicating Successfully updated RTS Buffer Model with load <loadname>.	
4.	Bring up netscape. **%netscape**	Netscape browser will appear.	
5.	In netscape, go to the data base utility. In the location section at the top of the netscape browser enter: **http://elmyra.hitc.com/db_util/db_util_dba <CR>**	The Flight Operations Segment Database Utilities page appears.	
6.	Go to the Reports section of the data base utilities. Click on the **Reports** section of the page.	The Flight Operations Segment Database Reports page appears.	
7.	Go to the Generate Reports section of the data base utilities web browser. Click on **Generate Reports** section of the page.	The Flight Operations Segment Generate Database Reports page appears.	
8.	Go to the Load Catalog Report section of the data base utilities web browser. Click on **Load Catalog Reports** section of the page.	The Flight Operations Segment Database Reports page appears.	

9.	Go to the RTS Load Catalog Report section of the data base utilities web browser and Generate the report. 1) Click on the **RTS Load Catalog Report** section of the page. 2) Click the Okay push button	The verification page appears to generate a RTS load catalog report. Page appears which indicates the RTS load catalog report name and that the report has completed.	
10.	Go back to the data base utility reports section of the data base utilities. 1) Click on the back button at the top of the Netscape Browser 4 TIMES. or 1) In the location section at the top of the netscape browser enter: **http://elmyra.hitc.com/db_util/db_util_dba** 2) Click on the **Reports** section of the page.	The Flight Operation Database Reports page re-appears.	
11.	Go to the View Reports section of the data base utilities web browser. Click on the **View Reports** section of the page.	The Flight Operations View Database Reports page appears.	

12.	Go to the Load Catalog Reports section of the data base utilities web browser. 1) Click on the **Load Catalog Reports** Section of the page. 2) Enter the report name into the Report Name in the text box provided. 3) Click the Okay push button.	A list of available reports to view appears. The report appears on the page. Contents of the report include the Generation Date, Time, and Title. The report also contains the Load Name, RTS Buffer ID, Load Contents Source, and Valid Uplink Period (start and stop time), and actual uplink time for each RTS entry in the load catalog.	
13.	Click on the back button at the top of the Netscape Browser 4 TIMES.	The Flight Operations Segment Database Reports page appears.	
14.	Click on **Print Reports** section of the page, Click **Load Catalog Reports.** Enter the report name into the Report Name in the text box provided. Click the Okay push button. Select 'Exit' from File menu.	A list of available reports to view appears. A hard copy of the report will be generated Netscape exits	
15.	**Invoke the RTS buffer model display**. 1) Click on the 'Tools' button in the Control window. 2) Select RTS Buffer Display from the tools list box and click 'OK'. or 3) Double click on the RTS Buffer Display in the tools selection box.	A Tools Selection list box appears. The tool selected appears in the text field box. The RTS Buffer Start Dialog window is displayed.	

16.	**<u>Get a map of the 128 RTS buffers</u>** and display it in the RTS Buffer display. 1) In the RTS Buffer Display, click on the Spacecraft Id pull down menu and select AM1. 2) In the RTS Buffer Display, click on the Mode pull down menu and select operational. 3) Click on the OK button.	The Spacecraft id selected appears in the appropriate text fields. The Subsystem selected appears in the appropriate text fields. The RTS Buffer display is populated with the summary information of all 128 buffers. The display indicates the RTS number, number of links to other RTS's, and the Inhibit id number. Criticality, Owner, Subsystem/Instrument, and Inhibit ID filter fields are empty.	
17.	**<u>Invoke the filter selection display.</u>** 1) From the RTS Buffer Display, click on the **Filter...** button.	The RTS filter display appears. The Subsystem and the Spacecraft id selected appear in the appropriate text fields. The Critical, Owner, Sub/Inst and Inhibit Id field appear unselected.	
18.	Select Critical in the Filter display to display the critical buffers. 1) Click on the Critical toggle button. 2) Click the 'Apply' button. 3) Click the 'OK' button.	The toggle button changes to selected. The RTS buffers that are critical are indicated on the RTS Buffer display. The 'C' field for each critical RTS changes to being highlighted red. ***Note: Requires a load with critical command(s)***	

19.	**<u>View the contents of a specific RTS</u>** buffer using the RTS Command Buffer Display. 1) Click on the RTS number that was just uplinked with MUN directive, to view the contents. 2) Click 'Close'.	The RTS Command Display appears populated with the contents of the RTS and with the RTS number selected at the top of the display. For each command in the RTS the relative time in HH:MM:SS.mmm, any EXEC RTS commands will have the RTS number in the "Links To" Field of the command and the textual mnemonic of the command will be displayed.	
20.	**<u>Report Generator (1 of 3)</u>** 1) Click the Tools button on the Control window. 2) Select Report Generator from the list box. 3) Click 'OK'	A Tools Selection list box appears. The tool selected appears in the text field box. The Report Selector window is displayed.	
21.	**<u>Report Generator (2 of 3)</u>** In the Report Selector display, select the spacecraft id, the Report Category and the Report Type. 1) From the Spacecraft Id pull down, select AM1. 2) From the Report Category pull down, select CMS. 3) Click the On Demand toggle button. 4) Click Modeling Reports (On Demmand).	The Report Selector display will filter on AM1, CMS on demand reports and display the available report types in the Available Reports section of the Report Selector display. The On_Demand Report Specification display will appear and display the available reports for the CMS on demand category. These report types will appear in a selection dialog portion of the display. The available types are ATC Map Report, RTS Buffer Report, RTS Map Report, Table Buffer Report and Table Map Report	

22.	**Report Generator (3 of 3)** Filter on the On-Demand type of reports that can be generated. From the On_Demand Report Selector click on **the New Report…** push button.	The On_Demand Report Specification display will appear and display the available reports for the CMS on demand category. These report types will appear in a selection dialog portion of the display. The available types are ATC Map Report, RTS Buffer Report, RTS Map Report, Table Buffer Report and Table Map Report.	
23.	**Generate a RTS Map report** 1) From the On_Demand Report Specification display, select RTS Map Report. 2) Click on Apply.	The RTS Map Report becomes highlighted The RTS Map report is generated. Verify, via event display, the RTS map report was generated successfully	
24.	**Retrieve the RTS Map report** that was previously generated. 1) From the On_Demand Report Selector Display, click on Retrieve Reports. 2) From the list of available reports, click on the RTS map report that was previously generated. 3) Click OK.	The On_Demand Report Selector display will update and list the reports available for viewing. RTS Map report entry will become highlighted.	
25.	Verify the RTS Map Report contains the name of the RTS load content that is currently loaded into each of the 128 RTS buffers.	All information for each of the 128 RTS buffers is correct.	

26.	**<u>Generate the RTS Buffer Report</u>** Select RTS Buffer Report. 1) From the On_Demand Report Specification display, select RTS Buffer Report. 2) Click on the RTS Number toggle button. 3) Enter in the RTS Number that the report is to be generated for. 4) Click on Apply.	The On_Demand Report Specification display will update and the RTS Number and RTS Load Name selection boxes will appear on the display. The RTS Buffer Report for the will be generated. Verify, via event display, the RTS buffer report was generated successfully	
27.	**<u>Retrieve the RTS Buffer Map report</u>** that was previously generated. 1) From the On_Demand Report Selector Display, click on Retrieve Reports. 2) From the list of available reports, click on the RTS buffer map report that was previously generated. 3) Click OK.	The On_Demand Report Selector display will update and list the reports available for viewing. RTS Buffer Map report entry will become highlighted.	
28.	Verify the RTS buffer report contains the list of commands in the buffer, their associated buffer location and the contents of each location.	Report contains all information about the RTS buffer.	
29.	Repeat **<u>Manual Uplink Notification.</u>**		

30.	Filter on all of the RTS buffers that are owned by the COM subsystem. 1) Select the COM owner by clicking on the Owner pull down menu on the display and highlighting COM. 2) Click the 'Apply' button 3) Click the 'OK' button	The toggle button changes to selected. The owner pull down displays all possible owners and COM stays displayed after being selected. The RTS buffers that are owned by the COM subsystem are indicated on the RTS Buffer display. The 'O' field for each RTS owned by COM changes to being highlighted.	
31.	Repeat **Invoke the filter selection display.**		
32.	Repeat **View the contents of a specific RTS.**		
33.	Repeat all 3 **Report Generator** steps.		
34.	Repeat **Generate a RTS Map report.**		
35.	Repeat **Generate the RTS Buffer Report.**		
36.	Repeat **Manual Uplink Notification.**		
37.	Filter on all of the RTS buffers that contain commands for the COM subsystem/instrument. Click on the Sub/Instr toggle button. Select the subsystem/instrument (AST) from the Sub/Instr pull down. Click the 'Apply' button. Click the 'OK' button	The toggle button changes to selected. The Sub/Instr pull down displays all possible subsystem/instruments that are available and AST stays displayed after being selected. The RTS buffers that are for the AST subsystem/instrument are indicated on the RTS Buffer display. The 'S' field for each RTS owned by AST changes to being highlighted.	

38.	Filter on all of the RTS buffers that contain commands for the AST subsystem/instrument. Click on the Inhibit Id toggle button. Enter the Inhibit Id (0). Click the 'Apply' button. Click the 'OK' button.	The toggle button changes to selected. The RTS buffers that are associated with the inhibit id 0 are indicated on the RTS Buffer display. The 'I' field for each RTS associated with inhibit id 0 changes to being highlighted.	
39.	Repeat **View the contents of a specific RTS.**		
40.	Repeat all 3 **Report Generator** steps.		
41.	Repeat **Generate a RTS Map report.**		
42.	Repeat **Generate the RTS Buffer Report.**		
43.	Close the RTS Command Buffer Display. Click on the 'Close' button of the RTS Command.	The RTS command display disappears.	
44.	End of test.		

Table Load Management

Test Case No: CMS 2190B

Test Configuration: See Appendix G

Test Support: Test support will consist of pre-planned loads created in prior test cases. EOC Startup scripts are required. The Table Loads are created in Test Case CMS -2040B. Database Utilities are needed for creating and viewing database reports. Retrieve the Table Load Reports from the Table Load Generation for reference purposes. Report Generation tools are required for new reports.

Test Description:

This test is designed to verify that the Table buffers in load management are being properly modeled. Load management should maintain a Table buffer model that mirrors what is on the spacecraft. This test demonstrates that when the user uplinks a Table load, CMS updates its buffer model. Once the load is uplinked and the buffer model is updated, the user can request a map report which is a summary report of all of the table buffers, or the user can request a report on one specific Table buffer. This test will also demonstrate the ability to view all available Table loads that have been generated and that are stored in the DMS load catalog. The validation and generation of the Table load is covered in Test Case CMS-2040B.

Success Criteria:

A user is able to generate both Table buffer model reports and ensure the information contained in the report is correct. The second success criteria will be that the user can generate a report on the available Table load for uplink via the load catalog. The third success criteria is that after a load is uplinked the CMS buffer model is updated with the contents of the newly uplinked load.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS-2000B -- FOS Server Startup.	Real-Time Server processes are running.	

3.	Log onto an FOT User Station. Start the User Station. Reference Test Case SYS-2010B – User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Within the Control window click the 'Tools' button.	The Tools dialog box appears.	
5.	Select the 'Event Display Global' option. Click the 'OK' button. Note: Customize the Window.	The Tools dialog box closes. The Event Display window appears.	
6.	**<u>Manual Uplink Notification</u>** Enter the MUN command to send manual uplink notification to CMS. From the Command Input line: Enter: **MUN <Full Uplink Load File Name> < time (YYYY:DDD:HH:MM:SS.mmm)>** Note: This information comes from the uplink times on the load report for each load.	The Event Display message indicates 'successfully uplinked Table Model with <Load File Name>. A TableBuffer.mdl and a <loadname>.buf file are created in the reports directory.	
7.	**<u>Database Report Verification</u>** Start Netscape Internet Browser % netscape & **OR** Click and hold the right mouse button and select Netscape.	The Netscape Browser will appear.	

8.	In the location field of the Netscape Browser, Enter http://elmyra.hitc.com/db_util/db_util_dba <CR> **OR** Select the designated bookmark for FOS Database Utilities	The Flight Operations Segment Database Utilities page appears.	
9.	Click on the Database Reports section of the page.	The Flight Operations Segment Database Reports page appears.	
10.	Click on Generate Reports section of the page.	The Flight Operations Segment Generate Database Reports page appears.	
11.	Click on Load Catalog Reports section of the page.	The Flight Operations Segment Load Catalog Reports page appears.	
12.	Click on the Table Load Catalog Report section of the page.	The verification page appears to generate a Table load catalog report.	
13.	Click 'Okay'.	Page appears which indicates the Table load catalog report name and that the report has completed.	
14.	Click on the back button at the top of the Netscape Browser 4 TIMES.	The Flight Operations Segment Database Reports page re-appears.	
15.	Click on the View Reports section of the page.	The Flight Operations Segment View Database Reports page appears.	
16.	Click on the Load Catalog Reports Section of the page.	A list of available reports to view appears.	
17.	Click on the back button at the top of the Netscape Browser 4 TIMES.	The Flight Operations Segment Database Reports page appears.	

18.	Click on Print Reports section of the page, followed by Load Catalog Reports. Enter the Report Name in the box. Click Okay.	A list of available reports to view appears.	
19.	Within the Control window, click the 'Tools' button.	The Tools dialog box appears.	
20.	**Modeling Report Information** Select the 'Report Generator' from the list box.	The Report Selector display window appears.	
21.	In the Report Selector display, select the spacecraft id, the Report Category and the Report Type. From the Spacecraft Id pull down, select AM1, from the Report Category pull down, select CMS, Double click the On Demand toggle button.	The Report Selector display will filter on AM1, CMS on demand reports and display the available report types in the Available Reports section of the Report Selector display.	
22.	Select Modeling Reports from the Available Reports section of the Report Selector display and click OK. Select Default time or click on 'Select Time' and 'OK' for a specific time period. Click'OK'.	The Report Selection display disappears and On_Demand Report Selector display appears. The display will contain the Modeling Reports in the Report Name text field, the User Name in the Requester Name text field, and the default start and stop time in the appropriate fields. The default stop time will be current time and the start time will be 2 hours earlier. (Time will be in the format YYYY/DDD HH:MM:SS.mmm.)	
23.	From the On_Demand Report Selector click on the New Report… push button.	The On_Demand Report Specification display will appear and display the available reports for the CMS on demand category. These report types will appear in a selection dialog portion of the display. The available types are ATC Map Report, RTS Buffer Report, RTS Map Report, Table Buffer Report and Table Map Report.	

24.	From the On_Demand Report Specification display, select Table Buffer Report and click on Apply. Enter the Table ID or Load Name in the appropriate box.	The Table Buffer Report (Table_Buffer) is generated in the reports directory.	
25.	From the On_Demand Report Specification display, select Table Map Report and click on Apply. Click 'OK'.	The Table Map Report (Table_Model) is generated in the reports directory.	
26.	Go to the Reports directory and print the Table_Model (AM1_Table_Buffer….rpt) report. % cd /fosb/test/am1/reports % ls -ltr *.rpt % lp -o landscape (AM1_Table_Model_YYYY…rpt)	The contents of this reports are compared with later reports.	
27.	Repeat the steps for Manual Uplink Notification using a previously created Table Load file.		
28.	Repeat the steps for Modeling Report Information.		
29.	**Partial Load** Repeat the steps for Manual Uplink Notification using a Partial Load.		
30.	Repeat the steps for Modeling Report Information.		

31.	**Buffer Verification** (These steps may be performed during off-line analysis) Verify the Database Report Information (Table Load Catalog Report) against the Load Report for each load uplinked.	Verify the following: Table Load Name, Table Name, Table Load Number, Valid Uplink Start/Stop	
32.	Verify the Table Model Map Report (AM1_Table_Model_YYYY…rpt) against the Database reports for the loads uplinked.	Verify the following: Table Number, Table Name, Last Uplinked Loadname, Owner and Tablesize	
33.	Verify the Table Buffer Report (AM1_Table_Buffer_NN…rpt) Information has been updated for each load uplinked and that it matches the Load Created.	Verify the following: Field Number, Field Size, Value, Default Value	
34.	End of test.		